



Francis  
Marion  
National  
Forest  
Objection  
Responses

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## INTRODUCTION

One objection with a variety of issues was reviewed. I looked at the Final Environmental Impact Statement (FEIS), the Revised Land Management Plan for the Francis Marion National Forest (revised plan), the Draft ROD (ROD), and related planning documents which cumulatively make up the “project record” while conducting my review. My review resulted in instructions for the Responsible Official on some issues. For other issues, I concluded that the project record sufficiently addressed the concerns raised. This document provides the details of my review.

## BIOLOGICAL OPINION

The objector raised a concern that the Endangered Species Act consultation (both 7(a)(1) and 7(a)(2) had not been completed on the revised plan.

### Objector Proposed Remedy

N/A

### Forest Service Response

Consultation started on January 14, 2015 when Forest Service biologists met with U.S. Fish and Wildlife Service biologists to review the federally-listed Threatened and Endangered Species list that would be addressed in the biological assessment (BA). On July 25, 2016, the Forest Service initiated formal consultation by sending the BA to the U.S. Fish and Wildlife Service. This BA evaluated the effects of alternative 2 on the 10 threatened or endangered species. The BA is in Appendix G of the FEIS, and a summary of the effects are addressed in the body of the FEIS starting on page 142. The Biological Opinion that US Fish and Wildlife Service issues, in response to the BA, had not been received when the draft ROD was issued. It was received on December 2, 2016.

### Instructions

Include in the revised plan and final ROD the non-discretionary Reasonable and Prudent Measures and Terms and Conditions of the Biological Opinion, received on December 2, 2016.

## RED-CKKADED WOODPECKERS (RCW)

The revised plan fails to provide ecological conditions to contribute to the recovery of the federally endangered Red-Cockaded Woodpeckers (RCW).

## PLAN COMPONENTS DO NOT CONTRIBUTE TO RECOVERY

The plan components do not contribute to or meet criteria for recovery as defined in the recovery plan for RCW.

### Objector Proposed Remedy

The Forest Service must review the recovery plan and make findings with respect to how it is defining recovery in terms of habitat conditions on the Forest, and how forest plan components do or do not contribute to meeting these criteria. Such findings should be included in the final ROD, where there is a section entitled “Meeting Substantive Requirements of the Rule.” The forest plan needs to impose limits on the adverse effects on RCWs that may occur, such as limiting the number of RCW clusters where timber harvest may occur.

#### Forest Service Response

The authority to determine what is recovery rests solely with the US Fish and Wildlife Service (USFWS), determined by a recovery team, and documented in a recovery plan. The RCW recovery plan was revised in 2003 and defines recovery levels and criteria on pages 140 and 141.

The Francis Marion National Forest is a designated primary core recovery population which means it must have 350 potential breeding groups to be recovered. Currently the Francis Marion RCW population has 460 potential breeding groups, 110 more than required to meet its recovery goal. The forest is also providing up to 20 pairs of juvenile RCWs annually for translocation to smaller RCW populations to aid range-wide recovery.

36 CFR 219.9 requires the Forest Service to provide the ecological conditions necessary to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area. The 2003 RCW recovery plan provides descriptions of the ecological conditions needed to recover the RCW. The revised plan provides the ecological conditions needed to aid recovery of this species (DC-ECO- 2 and 3 (pages 22-26); DC-MA2-1 (pages 39 – 40); DC-T&E-2 (PAGE 42); OBJ-ECO- 2 and 3 (pages 105 – 106); OBJ-T&E-2 (pages 107 – 108); S1 – S7 (pages 121 – 122); S 32, 33, and 41 (page 125); G 4 – 7 (pages 127 – 128) and G36 (page 131). The revised plan is similar to management that has been ongoing and the RCW have responded to the point where the Francis Marion far exceeds its recovery goal. It is reasonable to assume the revised plan will continue the growth of the population.

Active timber management can improve habitat conditions in RCW clusters and foraging habitat. In the process, there may be short-term adverse effects, for long-term benefits. The number of clusters that can be adversely effected is determined in the biological opinion and reflected in the incidental take statement.

In conclusion, the request in the remedy provided by the objector, asking the Forest Service to review the recovery plan and make findings with respect to how it is defining recovery in terms of habitat conditions on the Forest, and how forest plan components do or do not contribute to meeting these criteria, is not necessary to include the final ROD, in a section entitled “Meeting Substantive Requirements of the Rule.” It is already covered in the section labeled 219.9 in the draft ROD and the analysis conducted for the FEIS is appropriate.

#### Instructions



N/A

## INSUFFICIENT CONSULTATION

The draft ROD does not explain how the plan will contribute to recovery, fails to mention the recovery plan, and does not mention the duty to conserve under ESA.

### Objector Proposed Remedy

The Forest should engage in consultation with the USFWS regarding the question of contributing to recovery in accordance with agency policy in FSM 1920.3.

### Forest Service Response

The Forest Service has completed formal consultation with the USFWS on the revised plan and received the Biological Opinion (BO) on December 2, 2016. Reasonable and Prudent Measures and Terms and Conditions provided in the BO are mandatory, nondiscretionary items. All Reasonable and Prudent Measures and Terms and Conditions in the BO will be incorporated into the final plan and the ROD.

The objector states we provide no supporting documentation that the revised plan will contribute to recovery and do not mention the RCW recovery plan. In the draft ROD, the “Meeting the Substantive Requirements of the Rule Section 219.9” provides the rationale, explaining that implementation will contribute to recovery. The last paragraph of the ESA section of the draft ROD references recovery plans. There is no requirement to list each specific recovery plan.

### Instructions

Replace the existing Endangered Species Act (ESA) section in the draft ROD in its entirety with the following in the final ROD:

#### Endangered Species Act:

The Endangered Species Act of 1973 (ESA) requires federal agencies to implement proactive programs to conserve listed species and avoid implementing actions that could jeopardize the continued existence of a species. ESA Section 7(a)(1) states, Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act. The Francis Marion Revised Forest Plan is the agency’s strategy to meet our obligations under ESA Section 7(a)(1).

ESA section 7 (a)(2) requires federal agencies, through consultation with the U.S. Fish and Wildlife Service (USFWS), to ensure that their activities are not likely to jeopardize the continued existence of listed species or adversely modify designated critical habitats. The

Forest Service received a non-jeopardy Biological Opinion with incidental take authorization from USFWS on December 2, 2016 fulfilling our consultation requirement.

The Biological Opinion contained two Reasonable and Prudent Measures and several associated Terms and Conditions. These are mandatory nondiscretionary items that must be implemented. I am incorporating the Reasonable and Prudent Measures and Terms and Conditions into the revised plan through this ROD and they are included as Appendix J. These Reasonable and Prudent Measures and Terms and Conditions are equivalent to forest plan standards and must be implemented.

In January 2013, the Forest notified the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA) and the U.S. Fish and Wildlife Service (FWS) of the forest plan revision process and requested lists of federally listed threatened and endangered species, species proposed for Federal listing, and candidate species to be considered for further evaluation throughout the forest plan revision process. In 2015, the Forest met with the FWS to finalize the list of threatened and endangered species that would be addressed in the biological assessment (BA). See the BA (FEIS, Appendix G) in the planning record for the complete consultation history.

In accordance with Section 7(c) of the Act, the BA was prepared to assess the effects of implementing the Francis Marion National Forest Revised Land Management Plan on ten federally-listed threatened, endangered, proposed species or designated critical habitat known or likely to occur on the Francis Marion National Forest in Charleston and Berkeley County, South Carolina.

The BA found implementation of the revised land management plan **may affect, and is likely to adversely affect individuals of** American chaffseed (*Schwalbea americana*), Canby's dropwort (*Oxypolix canbyi*), frosted flatwoods salamander (*Ambystoma cingulatum*), pondberry (*Lindera melissifolia*) and red cockaded woodpeckers (*Picoides borealis*). The potential adverse effects to individuals of federally listed species would result in short-term harm incidental to ecological restoration activities such as prescribed fire, reducing hardwood and pine mid-stories and thinning and restoring longleaf pine to improve habitat conditions. While individuals may be impacted, the plan would provide an overall net benefit. Because the forest plan does not commit to any action, projects would be subject to further consultation.

The BA also determined that implementation of the revised plan will primarily result in discountable, insignificant, or completely beneficial effects to frosted flatwoods salamander designated critical habitat.

The BA determined that implementation of the revised plan may affect, but is not likely to adversely affect wood stork (*Mycteria americana*), which is not known to nest to on the Forest.

The BA found implementation of the revised land management plan activities will have **no effect** on shortnose (*Acipenser brevirostrum*) and Atlantic sturgeons (*Acipenser oxyrinchus*), Bachman's warbler (*Verimvora bachmanii*) and West Indian manatee (*Trichechus manatus*).

The revised plan includes desired conditions, standards and guidelines, objectives and provides broad management direction. These forest plan components comply with the requirements of ESA and the associated recovery plan for each federally listed species. For these reasons, I find this decision to be in compliance with the requirements of ESA.

#### INAPPROPRIATE USE OF RECOVERY STANDARD

The revised plan does not include the recovery standard nor the managed stability standard (MSS) for management of foraging habitat, and the analysis uses the MSS instead of the federal lands recovery standard.

##### Objector Proposed Remedy

Edit G35 as follows: "Criteria from the most up-to-date recovery plan should be met or exceeded for all federally-listed species, when available." (This is in addition to incorporating provisions from any existing recovery plans.)

##### Forest Service Response

The Objector states, "and the effects analysis inexplicably employs the MSS instead of the federal lands recovery standard." The forest used the MSS in the analysis because it provided a more realistic picture given the then current condition of the forest, which was devastated by hurricane Hugo in 1989, as allowed by a USFWS memorandum dated May 4, 2005. The memorandum from USFWS stated, "Implementation Procedures for Use of Foraging Habitat Guidelines and Analysis of Project Impacts under the Red-cockaded Woodpecker (*Picoides borealis*) Recovery Plan: Second Revision," provides implementation guidance for use of the foraging habitat standards presented in the red-cockaded woodpecker recovery plan. On page 5 of the guidance document it specifically mentions the Francis Marion National Forest. It states:

"In very rare circumstances, and on a case-by-case basis with support of local demographic data (e.g., comparing mean group size and reproductive output of affected groups with population means), it may be appropriate for an action agency to make an "is not likely to adversely affect" determination for projects that reduce foraging habitat in partitions that: (1) currently do not meet the managed stability standard, or (2) are currently above but will go below the standard post-project.

Populations or select geographic areas where this may be applicable, because birds have adapted to habitat conditions not meeting the managed stability standard, may include forests devastated by hurricanes, e.g., the Francis Marion National Forest, or habitats

comprised of very low basal area and with smaller diameter trees, e.g., south central Florida. In these cases, further small, i.e., discountable or insignificant, reductions of foraging habitat may not result in loss of groups, given the local evidence that many groups, after multiple generations, have adapted to habitat below the managed stability standard.”

While the above guidance would allow a “not likely to adversely affect” determination, the Forest chose to be conservative and made a “likely to adversely affect” determination for clusters where foraging habitat is limited, and formally consulted to receive incidental take for the clusters.

Currently G35 says “Guidelines and recovery objectives in the most up-to-date recovery plan should be considered for all federally-listed species, when available. Collaborate with U.S. Fish and Wildlife Service in the conservation of at-risk species”. This guideline should be clear that the Forest will implement the guidelines and recovery objectives when available and feasible not just consider them.

#### Instructions

Modify G35 to state “**G35.** Guidelines and recovery objectives in the most up-to-date recovery plan should be implemented for all federally-listed species, when available and feasible. If site specific conditions preclude implementing recovery tasks, consult with the USFWS field office using the appropriate consultation tool. Collaborate with U.S. Fish and Wildlife Service in the conservation of at-risk species.”

### DEFERRING PLAN COMPONENTS TO PROJECTS

The revised plan does not include plan components for the ecological conditions needed for recovery, but rather it defers that decision to individual projects. In doing so it provides unlimited discretion to the project decision-maker by requiring (ignoring for the moment that desired conditions don’t require anything) that that decision-maker only “consider” the Recovery Plan. The Forest therefore cannot demonstrate that the revised plan is providing foraging habitat necessary to contribute to recovery of the RCW.

#### Objector Proposed Remedy

Edit G35 as follows: “Criteria from the most up-to-date recovery plan should be met or exceeded for all federally-listed species, when available.” (This is in addition to incorporating provisions from any existing recovery plans.)

#### Forest Service Response

The 2003 RCW recovery plan provides descriptions of the ecological conditions needed to recovery of the RCW. The revised plan provides the ecological conditions needed to aid recovery of this species (DC-ECO- 2 and 3 (pages 22-26); DC-MA2-1 (pages 39 – 40); DC-T&E-2

(PAGE 42); OBJ-ECO- 2 and 3 (pages 105 – 106); OBJ-T&E-2 (pages 107 – 108); S1 – S7 (pages 121 – 122); S 32, 33, and 41 (page 125); G 4 – 7 (pages 127 – 128) and G36 (page 131). The revised plan proposes management similar to what the Francis Marion has been practicing, under which the RCW have responded favorably and the Francis Marion far exceeds its recovery goal. It is reasonable to assume under the revised plan there will be continued growth of the population. There are, however, some changes that should be made to DC-MA2-1, DC T&E 2, OBJ T&E 2, and G35 to be clear that the Forest will meet their obligations under the Endangered Species Act section 7(a)(1) by implementing programs to conserve listed species, not simply consider them.

### Instructions

Amend DC-MA2-1, DC-T&E-2, OBJ-T&E-2, and G35 as follows; changes are in bold.

For DC-MA-2-1, pages 39 and 40 of the revised plan, change the first sentence in the second paragraph to *Within Red-cockaded Woodpecker Clusters: Guidelines for the management of cavity trees and clusters from the most recent species recovery plan **are implemented (See OBJ-T&E-2 and G35 for exceptions).*** Currently this sentence is *Within Red-cockaded Woodpecker Clusters: Guidelines for the management of cavity trees and clusters from the most recent species recovery plan **are considered.***

For DC-T&E-2, page 42 of the revised plan, change the last sentence to “**Project development is based on implementing guidelines in the most recent Recovery Plan in the management of cavities, clusters, and foraging habitat.**” Currently this sentence is “Guidelines in the most recent Recovery Plan in the management of cavities, clusters, foraging habitat, and monitoring *are considered during project development.*”

For OBJ-T&E-2, page 107 of the revised plan, change the second paragraph to “**Management Strategy:** The forest supports a recovered population for the red-cockaded woodpecker in upland longleaf and wet pine savanna ecosystems within Management Area 1 and contributes towards range-wide recovery efforts. **Every project with the potential to affect RCW, will implement the Reasonable and Prudent Measures and Terms and Conditions in the biological opinion, and guidelines in the most recent species recovery plan. If site specific conditions do not allow for the implementation of the Reasonable and Prudent Measures and Terms and Conditions or conditions dictate a different management strategy, project-level formal consultation will be reinitiated with USFWS. A project specific decision will not be signed until the Forest Service has received a project specific non-jeopardy biological opinion.**” Currently the second paragraph ends with the sentence “*Every project with the potential to affect RCW will consider the terms and conditions of the biological opinion and guidelines in the most recent species recovery plan.*”

For G35, page 131 of the revised plan, change this guideline to “**G35. Guidelines and recovery objectives in the most up-to-date recovery plan **should be implemented** for all federally-listed species, when **available and feasible. If site specific conditions preclude implementing****

**recovery tasks, consult with the USFWS field office using the appropriate consultation tool.** Collaborate with U.S. Fish and Wildlife Service in the conservation of at-risk species.” Currently this guideline is “**G35.** Guidelines and recovery objectives in the most up-to-date recovery plan **should be considered** for all federally-listed species, when available. Collaborate with U.S. Fish and Wildlife Service in the conservation of at-risk species.”

#### MISSING STATEMENT

The final plan omits the statement “There may be a need to deviate from the Red-cockaded Woodpecker Recovery Plan to provide long term benefits for the red-cockaded woodpecker (RCW) and its habitat” (p. 115),” but does not indicate what plan components were changed so that it is no longer true. This issue needs to be clarified.

##### Objector Proposed Remedy

The final plan omits this statement, but does not indicate what plan components were changed so that it is no longer true. This issue needs to be clarified.

##### Forest Service Response

Between the draft and final revised plan, nothing changed that would preclude the potential for deviating from the RCW recovery plan to provide long-term benefits. The Biological Assessment (FEIS Appendix G, pp. 208 to 221) makes it clear there are instances where implementing the plan may reduce foraging habitat below the managed stability standard. This could include cutting offsite loblolly pine to restore longleaf pine and thinning existing foraging habitat to improve stand structure. The revised plan should include a guideline similar to G36 that was found in the draft plan.

##### Instructions

Add a guideline to the revised plan similar to G36 in the draft plan, which was “Ensure forest management activities are consistent with the most up-to-date recovery plan for the red-cockaded woodpecker at the time of the activities. In some instances there may be a need to deviate from The Red-cockaded Woodpecker Recovery Plan to provide long term benefits for the red-cockaded woodpecker (RCW) and its habitat (e.g., longleaf pine restoration or timber harvest which could reduce foraging below the Managed Stability Standard in the Red-cockaded Woodpecker Recovery Plan). Consult with USDI Fish and Wildlife Service.”

#### REMOVING COMMERCIAL-SIZED TREES IN RCW HABITAT

In this case suitability would require a scientific demonstration that removing commercial-sized trees needed for foraging is necessary to maintain foraging habitat.

##### Objector Proposed Remedy

Suitability would require a scientific demonstration that removing commercial-sized trees needed for foraging is necessary to maintain foraging habitat and we request that such information be provided.

### Forest Service Response

On page 49 of the objection, the objector states, “The second step in determining which lands are suitable for timber production is based on compatibility with desired conditions and objectives for the land area in a particular plan alternative. In accordance with NFMA, the Planning Handbook identifies these other “pertinent factors” to be addressed in the EIS:

1. Timber production is a primary or secondary use of the land.
2. Timber production is anticipated after desired conditions have been achieved.
3. A flow of timber can be planned and scheduled on a reasonably predictable basis.
4. Regeneration of the stand is intended.
5. Timber production is compatible with the other desired conditions or objectives for the land designed to fulfill the requirements of 36 CFR 219.8-219.10.”

Forest Plan components that address the above “pertinent factors” include DC\_ECO\_2 and DC\_ECO\_3 (revised plan p. 22-26), DC\_T&E\_2 (p. 42), DC\_MUB\_4 (p. 60), OBJ\_ECO\_3 (p. 105 – 106), S-2 and S-3 (p. 121), section 4.3.1 Suitability for Timber Production (p. 132), and Forest Plan Appendix B, timber suitability (p. 157).

The primary role of RCW foraging habitat is to meet the foraging needs of RCW. The RCW recovery plan on page 186 states, “Fitness increases if foraging habitat is burned regularly, has an open character and herbaceous groundcovers.” Page 193 of the RCW recovery plan states, “High pine density negatively affected group size and productivity. High densities of small pines negatively affected group size and productivity, and high densities of small pines negatively affected selection of stands for foraging.” Page 193 also includes a list of several scientific publications to back up these statements.

The RCW recovery plan on page 188 describes good quality foraging habitat as: “...has some large old pines, low densities of small and medium pines, sparse or no hardwood midstory, and a bunchgrass and forb groundcover. Based on results of studies described in 2E and Table 13, good quality habitat has all of the following characteristics:

- a. There are 45 or more stems/ha (18 or more stems/ac) of pines that are > 60 years in age and > 35 cm (14 in) dbh. Minimum basal area for these pines is 4.6 m<sup>2</sup>/ha (20 ft<sup>2</sup>/ac). Recommended minimum rotation ages apply to all land managed as foraging habitat.
- b. Basal area of pines 25.4 – 35 cm (10 – 14 in) dbh is between 0 and 9.2 m<sup>2</sup>/ha (0 and 40 ft<sup>2</sup>/ac).
- c. Basal area of pines < 25.4 cm (< 10 in) dbh is below 2.3 m<sup>2</sup>/ha (10 ft<sup>2</sup>/ac) and below 50 stems/ha (20 stems/ac).
- d. Basal area of all pines > 25.4 cm (10 in) dbh is at least 9.2 m<sup>2</sup>/ha (40 ft<sup>2</sup>/ac). That is, the minimum basal area for pines in categories (a) and (b) above is 9.2 m<sup>2</sup>/ha (40 ft<sup>2</sup>/ac)....”

The recovery plan lists additional characteristics by these 4 deal with stem density for pines.

To meet the desired future condition of the foraging habitat and to maintain it through time, regular timber harvest will occur, therefore timber production is a secondary use of the land. With growth and yield tables the Forest can predict and schedule planned treatments to maintain quality foraging habitat.

Within 0.5 mile radius circles of RCW cluster centers are approximately 500 acres of habitat. Of this, 120 acres is needed for foraging habitat. With the diverse habitat matrix on the Francis Marion, it is highly unlikely all 500 acres will be pine. We also know the RCWs are not evenly distributed across the landscape and foraging partitions may not include 500 acres. With these ideas in mind, it is imperative that some regeneration occurs to insure a steady flow of suitable habitat through time. RCW foraging habitat meets all 5 criteria to be classified as suitable for timber production.

The project record adequately discusses the appropriateness of removing commercial-sized trees to achieve and maintain these foraging habitat conditions.

Instructions

N/A

## INCORPORATE SILVICULTURAL GUIDELINES

The revised plan should incorporate silvicultural guidelines from the RCW recovery plan.

Objector Proposed Remedy

These and other additional silviculture guidelines should be incorporated into the revised plan (p. 198).

Forest Service Response

There is no need to incorporate silvicultural guidelines from the RCW recovery plan because the silvicultural guidelines in the revised plan provide for an abundance of suitable RCW habitat for population expansion.

The revised plan provides the ecological conditions needed to aid recovery of this species (DC-ECO- 2 and 3 (pages 22-26); DC-MA2-1 (pages 39 – 40); DC-T&E-2 (PAGE 42); OBJ-ECO- 2 and 3 (pages 105 – 106); OBJ-T&E-2 (pages 107 – 108); S1 – S7 (pages 121 – 122); S 32, 33, and 41 (page 125); G 4 – 7 (pages 127 – 128) and G36 (page 131).

The revised plan states, “Desired conditions for old growth are not expected to affect acres suitable for timber production. All of the 1) upland longleaf pine, and 2) flatwoods and wet-pine savanna ecosystems will be managed so that the older trees will be at least 120 years old, as recommended in the 2003 revision of the Recovery Plan for the Red-cockaded Woodpecker. In



time, most of these longleaf pine types in MA1 should have old growth conditions, even though they are managed.”

There are numerous two-aged regeneration systems available to provide large old trees into the future. The revised plan defines a two-aged system as, “A planned sequence of treatments designed to regenerate or maintain a timber stand with two age classes. A two-aged system is a form of even-aged management (Forest Plan p. 251). Even-aged regeneration methods that provide large trees into the future including:

- **Clearcutting with reserves** – A two-aged regeneration method in which varying numbers of reserve trees are not harvested to attain goals other than regeneration (Forest Plan p. 204).
- **Seed-tree with reserves method** – A two-aged regeneration method in which some or all of the seed trees are retained after regeneration has become established to attain goals other than regeneration (Forest Plan p.244).
- **Shelterwood with reserves** – A two-aged regeneration method in which some or all of the shelter trees are retained, well beyond the normal period of retention, to attain goals other than regeneration (Forest Plan p.244).

#### Instructions

N/A

#### LIMIT ROTATION AGE IN RCW FORAGING HABITAT

There must be plan components that limit rotation age in RCW foraging habitat so that it produces cavity trees in abundance.

#### Objector Proposed Remedy

There must be plan components that limit rotation age in RCW foraging habitat so that it produces cavity trees in abundance (which means identifying these areas as unsuitable for timber production as discussed in Issue 5, Timber Suitability and NFMA).

#### Forest Service Response

The revised plan has numerous opportunities to provide large old trees scattered across the landscape. It provides for the ecological conditions needed to aid recovery of this species (DC-ECO- 2 and 3 (pages 22-26); DC-MA2-1 (pages 39 – 40); DC-T&E-2 (PAGE 42); OBJ-ECO- 2 and 3 (pages 105 – 106); OBJ-T&E-2 (pages 107 – 108); S1 – S7 (pages 121 – 122); S 32, 33, and 41 (page 125); G 4 – 7 (pages 127 – 128) and G36 (page 131). The entirety of the paragraph cited by objectors from Appendix B, page 154 states, “Desired conditions for old growth are not expected to affect acres suitable for timber production. All of the 1) upland longleaf pine and 2) flatwoods and wet-pine savanna ecosystems will be managed so that the older trees will be at least 120 years old, as recommended in the 2003 revision of the Recovery Plan for the Red-cockaded Woodpecker. In time, most of these longleaf pine types in MA1 should have old growth conditions, even though they are managed.”

There are various two-aged regeneration systems available, as provided in the revised plan on pg. 204 and 244 and discussed above that will provide large old trees into the future.

Instructions

N/A

ALL MANAGEMENT COULD OCCUR IN RCW HABITAT

Because there are no standards preventing it, it is possible that all management would occur in RCW habitat, and these potential effects must be analyzed.

Objector Proposed Remedy

Because there are no standards preventing it, it is possible that all management would occur in RCW habitat, and these potential effects must be analyzed.

Forest Service Response

Focusing all management activity in currently occupied RCW habitat does not satisfy the proposed action of restoring native ecosystems, sustaining species diversity, restoring watersheds, or managing for healthy resilient forests (FEIS p. 13). Figure 13.9 (FEIS Appendix G, p.219) illustrates longleaf pine restoration opportunities in relation to ¼ mile RCW foraging partitions. Most RCW clusters and foraging habitat is longleaf pine, so restoration opportunities are limited. Figure 13.8 (FEIS Appendix G, p.218) illustrates RCW clusters in relation to wet savannah ecosystems. While many RCW clusters are in wet savannahs, there are abundant opportunities for restoration outside of RCW foraging zones.

As discussed under the “Deferring plan components to projects” objection issue, OBJ-T&E-2 and Guideline G35 will be rewritten. The management strategy of revised OBJ-T&E-2. Red-Cockaded Woodpecker states, “The forest supports a recovered population for the red-cockaded woodpecker in upland longleaf and wet pine savanna ecosystems within Management Area 1 and contributes towards range-wide recovery efforts. Every project with the potential to affect RCW, will implement the Reasonable and Prudent Measures and Terms and Conditions in the biological opinion, and guidelines in the most recent species recovery plan. If site specific conditions do not allow for the implementation of the Reasonable and Prudent Measures and Terms and Conditions or conditions dictate a different management strategy, project-level formal consultation will be reinitiated with USFWS. A project specific decision will not be signed until the Forest Service has received a project specific non-jeopardy biological opinion.”

Guideline G35 will be “Guidelines and recovery objectives in the most up-to-date recovery plan should be implemented for all federally-listed species, when available and feasible. If site

specific conditions preclude implementing recovery tasks, consult with the USFWS field office using the appropriate consultation tool.”

There is no need to analyze the effects that all management would occur in RCW habitat because together OBJ-T&E-2 Red-Cockaded Woodpecker and G35 preclude this possibility. Further, the biological opinion was received on December 2, 2016 and it established a level of incidental take, which is the maximum number of active RCW clusters that can be adversely affected annually. The numbers in the biological opinion match those in the biological assessment found in table 2 (FEIS Appendix G, p. 220). As discussed earlier, all Reasonable and Prudent Measures and Terms and Conditions in the biological opinion are mandatory, nondiscretionary actions that must be implemented to minimize adverse effects to listed species.

Instructions

N/A

EFFECTS GREATER THAN ASSUMED FOR RCW FORAGING HABITAT

The effects allowed by the plan will be greater than assumed.

Objector Proposed Remedy

Include a standard that prevents elimination of foraging habitat that is needed to support existing RCW clusters.

Forest Service Response

The objector states, “The adverse effects are understated, and therefore contribution to recovery is less likely. We believe that the effects allowed by the plan will be greater than assumed, and that plan components that permit movement away from recovery do not “contribute to recovery.”

The Francis Marion RCW populations is recovered so management action won’t take away from our ability to reach recovery. The revised plan has an objective of 450 active clusters. The current RCW population is 477 active clusters and 460 potential breeding groups, 110 groups above the Francis Marion population goal of 350 potential breeding groups. If the population declines to 450 active clusters, the FS would initiate actions to turn around declines. If the population declined further to 400 active clusters, this level would trigger reinitiation of formal consultation with USFWS and stop all actions that could adversely affect RCW. Even at this level, the population would still be over 350 potential breeding groups, the recovery level established by USFWS.

On May 4, 2005, USFWS issued guidance on implementing the recovery plan foraging standards. On page 5 of the guidance document it specifically mentions the Francis Marion National Forest. It states:

“In very rare circumstances, and on a case-by-case basis with support of local demographic data (e.g., comparing mean group size and reproductive output of affected groups with population means), it may be appropriate for an action agency to make an ‘is not likely to adversely affect’ determination for projects that reduce foraging habitat in partitions that: (1) currently do not meet the managed stability standard, or (2) are currently above but will go below the standard post-project. Populations or select geographic areas where this may be applicable, because birds have adapted to habitat conditions not meeting the managed stability standard, may include forests devastated by hurricanes, e.g., the Francis Marion National Forest, or habitats comprised of very low basal area and with smaller diameter trees, e.g., south central Florida. In these cases, further small, i.e., discountable or insignificant, reductions of foraging habitat may not result in loss of groups, given the local evidence that many groups, after multiple generations, have adapted to habitat below the managed stability standard.”

The revised plan uses the flexibility in the RCW recovery plan to implement projects that may have a short-term adverse effect for long-term benefit. The language in the USFWS guidance document suggests that dropping below the managed sustainability standard on the Francis Marion may have insignificant and discountable effects. The RCW recovery plan on page 186 states “Fitness increases if foraging habitat is burned regularly, has an open character and herbaceous groundcovers”. Page 193 of the RCW recovery plan states “High pine density negatively affected group size and productivity. High densities of small pines negatively affected group size and productivity...High densities of small pines negatively affected selection of stands for foraging.” Page 193 also includes a list of several scientific publications to back up these statements. All of the above suggests that habitat quality is more important than habitat quantity. Therefore there is no need for a standard to limit the forest’s ability to manage existing foraging habitat. G35 would insure significant adverse effects do not happen.

#### Instructions

N/A

### RCW DISPERSMENT AND SPACING REQUIREMENTS

Plan components should follow the Recovery Plan and establish spacing requirements for treatments based on RCW dispersal distances. The USFWS will have to consider these treatments as effects that lead to incidental take of a listed species.

#### Objector Proposed Remedy

Plan components should follow the Recovery Plan and establish spacing requirements for treatments based on RCW dispersal distances. However, these effects must also be considered in the context of the requirement for plan components to contribute to recovery.

### Forest Service Response

The revised plan provides the ecological conditions needed to provide habitat connectivity and minimize habitat fragmentation (DC-ECO- 2 and 3 (pages 22-26); DC-MA2-1 (pages 39 – 40); DC-T&E-2 (PAGE 42); OBJ-ECO- 2 and 3 (pages 105 – 106); OBJ-T&E-2 (pages 107 – 108); S1 – S7 (pages 121 – 122); S 32, 33, and 41 (page 125); G 4 – 7 (pages 127 – 128) and G36 (page 131). The 2003 RCW recovery plan (p.189) states, “Foraging habitat is not separated by more than 61 m (200ft) of non-foraging areas. Non-foraging areas include (1) any predominantly hardwood forest, (2) pine stands less than 30 years in age, (3) cleared land such as agricultural lands or recently clearcut areas, (4) paved roadways, (5) utility rights of way, and (6) bodies of water. Following this guidance will also minimize habitat fragmentation.

The Objector states “The effects analysis in the BA suggests these additional standards” however the Forest Service does not suggest a need for additional standards in the BA. It seems the Objector may be suggesting these standards based on the effects analysis, but the two suggested standards from the Objector may actually impede long-term recovery of RCW.

The first suggested standard is “Do not thin stands until they meet requirements for foraging habitat in foraging partitions, unless there are sufficient >10” dbh pine trees so that the treatment would improve foraging habitat.” However, thinning young stands before they are foraging habitat reduces competition for light, space, and nutrients and concentrate growth on the residual trees, allowing them to reach the 10” minimum diameter quicker, and become foraging habitat sooner.

The second suggested standard is “Do not harvest stands until they meet requirements for foraging habitat in foraging partitions, and do not remove longleaf pine trees that provide foraging habitat.” Harvesting offsite loblolly pine before it becomes foraging habitat could provide long-term benefits. Harvesting a stand that is not foraging habitat does not influence foraging habitat. Getting this stand into longleaf pine as soon as possible will provide long-term benefits.

### Instructions

N/A

## PLAN COMPONENT SPECIFICITY

*General summary of objectors issue;* the plan fails to meet the requirements of 36 CFR 219.9 because plan components are not specific enough nor sufficiently mandatory or regulatory to provide the certainty needed to meet legal requirements. There are instances where the revised plan defers decisions about at-risk species to discretionary project-level decision-making, and sometimes to other agencies or other decision processes not subject to NFMA requirements.

## MAPPING HABITAT AND KNOWN SITES

Standard S30 applies to “known habitat for Carolina gopher frog.” There is no map of this habitat, nor are any criteria provided for identifying it. S31 applies similarly to “known active American swallow-tailed kite nests.”

#### Objector Proposed Remedy

This approach may be warranted to identify active use sites where criteria are not needed. In both cases, we recommend that either a map is provided that indicates where the standards apply, or require a pre-project survey to determine if the conditions occur. There is no standard that requires this. S35 includes a map for rare plant communities, but would require a survey for “population sites for at-risk plant species.” S40 also refers to these unidentified locations. G33 refers to “known breeding ponds for frosted flatwoods salamanders,” requiring criteria and a survey. G34 refers to “swallow-tailed kite habitat” which must be defined in the plan.

#### Forest Service Response

A map of known habitat for the Carolina gopher frog and known active American swallow-tailed kite nests would inform where standards and guidelines for these species apply; however, poaching concerns for Carolina gopher frog preclude mapping as a practicable remedy for this species. Swallow-tailed kites rarely use the same nest, so putting a map in the plan of known nest sites could quickly become biologically irrelevant.

Carolina gopher frog habitat is described in multiple locations in the plan (DC-ECO- 2, 3, and 4; DC-SCC-1, 3, 5, and 6; DC-RIZ-Wando; OBJ-ECO-3 and 4; and OBJ-SCC-1. American swallow-tailed kite habitat is described in DC-ECO-5, 7, and 8 and OBJ-SCC-2.

#### Instructions

- Add a desired condition that there is improved connectivity between Carolina gopher frog meta-populations.
- Add forest plan components to protect these species from logging activities.
- Add forest plan components that provide protection from ground-disturbing activities during migration seasons in areas where connectivity is important.

## ADAPTIVE MANAGEMENT

The planning rule supports adaptive management. It is the framework of assessment, planning, monitoring and then plan amendment or revision that “creates a responsive planning process” and “allows the Forest Service to adapt to changing conditions” (36 CFR 219.5(a)). However, there is nothing in the planning rule that provides authority to establish a flexible forest plan by building uncertainty into the plan components themselves. The Francis Marion plan appears to have incorporated this unsupportable approach: “This plan supports an adaptive management approach, which emphasizes checking results as conditions change and making the plan more adaptable to changes in social, economic and environmental conditions”.

### Objector Proposed Remedy

None. All remedies proposed related to plan specificity were for specific parts of the plan and are included in other summaries.

### Forest Service Response

In this Issue, as well as in the Issue on Plan Component Specificity, the Objector suggests that the revised plan should provide a certain level of “certainty”. However, the planning rule created a planning framework that recognizes that there is always going to be a certain amount of uncertainty. In the Preamble to the Planning Rule (see Federal Register, Vol. 77, No. 68, p. 21194), in a response to a comment about risk and uncertainty, this is specifically addressed where it states – “the adaptive management framework of assessment, revision or amendment, and monitoring in this final rule provides a scientifically supported process for decisionmaking in the face of uncertainty and particularly under changing conditions. The intent of this framework is to create a responsive planning process and allows the Forest Service to adapt to changing conditions and improve management based on new information. Monitoring provides the feedback for the planning cycle by testing assumptions, tracking relevant conditions over time, and measuring management effectiveness.” “The science of risk management is rapidly evolving. To require specific techniques or methodologies would risk codifying approaches that may soon be outdated.”

The one thing that is “certain” is that the desired conditions and objectives will be the drivers for the management actions on the Forest to restore, enhance or maintain the ecological conditions necessary for the Forest’s at-risk species; and that the standards and guidelines will provide any needed “sideboards” to proposed management activities.

The revised plan will have a monitoring program in place to monitor the status of various ecological conditions and key characteristics of terrestrial and aquatic ecosystems, as well as the status of various ecological conditions that contribute to the recovery, conservation, or maintenance of at-risk species. If it is determined through monitoring that changes are needed to meet the needs of the Forest’s at-risk species then adjustments to the plan will be made.

### Instructions

N/A

## PLAN COMPONENTS FOR AQUATIC ECOSYSTEMS

While the plan components for terrestrial ecosystems are relatively well-defined, those for aquatic ecosystems are not. DC-ECO-8. “Aquatic species and community biological diversity, density and distribution are maintained, enhanced or restored. The amount, distribution and characteristics of aquatic habitats for all life stages are present to maintain populations of native species.” Similar language is used in DC-ECO-10.

#### Objector Proposed Remedy

The plan should provide additional guidance for what these characteristics are or how they would be determined. As it stands, it essentially restates the diversity requirement of the Planning Rule.

#### Forest Service Response

The characteristics of aquatic ecosystems is described in Section 2.1.1. DC-ECO-8 describes the desired composition, structure, ecological processes, landscape structure, and connectivity. DC-ECO-10 provides the description for the desired habitat, biological, physical condition of streams and rivers.

As required by § 219.8(a), the revised plan includes standards or guidelines to maintain or restore the ecological integrity of aquatic ecosystems and watersheds in the plan area and plan components to maintain or restore their structure, function, composition, and connectivity.

Maintaining and/or improving aquatic ecosystems can be found in several places including Riparian Management Zones, Hydrologic Restoration, Soil and Water Quality, and Standards: 4.2.1.3 Standards for Soil and Water and Aquatics; 4.2.1.4 Standards for Riparian Management Zones; 4.2.1.5 Standards for Channeled Ephemeral Stream Zones, and the FEIS. Key characteristics for aquatic ecosystems is described in the Ecological Sustainability Evaluation analyses in the FEIS.

#### Instructions

N/A

### AQUATICE NUISANCE SPECIES

The revised plan should include guidance for aquatic nuisance species.

#### Objector Proposed Remedy

One of the key findings in the Assessment is that, “Nonnative invasive species have increased to threaten all ecological systems on the Forest” (p. 17). These include aquatic nuisance species. This plan component needs to be supplemented to incorporate the relevant guidance that is necessary to protect at-risk species. To meet its NFMA requirement for plan components to provide for ecological integrity, the forest plan must incorporate the measures that are necessary to do so. In conjunction with the second sentence, plan components must provide some basis for determining what is sufficient.

#### Forest Service Response

The final rule addresses invasive species in § 219.6, which requires information about stressors such as invasive species to be identified and evaluated in the assessment, and in corresponding requirements in §§ 219.8 (Sustainability) and 219.10 (Multiple use). Within the revised plan,



2.1.5 Stressors and Threats, DC-THR-1. Non-Native Invasive Species Management meets these requirement. However, aquatic invasive (nuisance) species are not specifically mentioned.

Instructions

Amend **DC-REC-6** to address aquatic invasive species by adding the language shown in bold below.

Dispersed Recreation - Fishing Opportunities Visitors are able to fish in hundreds of miles of blackwater streams, as well as several lakes and ponds. Lakes and manmade ponds are stocked and managed for sustainable recreational fishing opportunities. Primary desired species include bluegill, redear sunfish, largemouth bass and channel catfish.) Bass-to-bluegill ratios are monitored and maintained at desirable levels. **The introduction and spread of aquatic nuisance species are controlled and managed through effective monitoring, responsive treatment, and public education. These efforts are informed by and in accordance with the most current and appropriate Forest Service guidance and South Carolina Department of Natural Resources Aquatic Nuisance Species Program. Vegetation around pools is managed to be ecologically and functionally sufficient to filter adverse levels of sediment and pollution from entering water bodies.** Water quality parameters (water temperature, dissolved oxygen, **turbidity**, hardness, alkalinity and pH) are monitored and used as a basis to improve conditions within ponds for sustainable fisheries.

Also add this same language (in bold above) to **DC-THR-1. Non-Native Invasive Species Management.**

PRIORITY WATERSHED DESIRED CONDITIONS

The revised plan suggests that characteristics of aquatic habitats are known (for at least priority watersheds) and need improvement. If this information is known, then it must also be known what condition is desired for these characteristics and the revised plan should reflect this.

Objector Proposed Remedy

If it is known that they need improvement, it must also be known what condition is desired for these characteristics; the plan should reflect this.

Forest Service Response

Section 219.7(f)(1)(i) requires identification of priority watersheds for restoration but does not require specific criteria for selecting these watersheds. The Francis Marion NF does know the current and desired condition of their priority watersheds, and this information can be found in the Forest's Watershed Condition Framework and in the FEIS. Desired conditions for large wood and aquatic organism passage, forest wide, can be found under DC-ECO-10. Rivers and Streams (aquatic lotic systems).

Instructions

N/A

## EFFECTS ANALYSIS FROSTED FLATWOODS SALAMANDER

DC-RIZ-Wando-1 is to “provide 1,300 acres of critical habitat for the threatened frosted flatwoods salamander.” It is not clear what this means. DC-Z-Wando-S-1 states that, “management activities improve the condition of breeding wetlands and migratory habitat” for the salamander.

### Objector Proposed Remedy

While “improvement” may be a desired condition, it is not a very demanding one and does not necessarily provide the necessary ecological conditions. We recommend that they be included in the plan.

### Forest Service Response

The Wando Resource Integration Zone is not Flatwoods Salamander specific. Its purpose is to work with partners to restore multiple habitat types and species connectivity. This is in compliance with coarse-filter requirements outlined in Section 219.9—Diversity of Plant and Animal Communities “...coarse-filter requirements are also expected to support the persistence of many species currently considered imperiled or vulnerable across their ranges or within the plan area.” The objectors cited only part of the flatwood salamander desired condition. The desired condition reads “Approximately 10,000 acres of restored longleaf pine ecosystems provide 1,300 acres of critical habitat for the threatened frosted flatwoods salamander.”

Desired conditions for Flatwoods Salamanders can be found in DC-T&E-1. Frosted Flatwoods Salamander and more specifically in Appendix B: Timber Analysis (“In frosted flatwoods salamander designated critical habitat, the desired condition is fire maintained, open canopy longleaf pine habitat. Trees grow through the years, their crowns expand, and younger trees come into the forest. Gradually the density of trees exceeds the desired open canopy condition. Periodic timber harvest helps reduce this density to maintain an open canopy and provide enough light for a herbaceous understory and for young longleaf pine to eventually replace the older trees in the forest.”).

### Instructions:

N/A

## CONNECTIVITY FOR GOPHER FROG HABITAT

There are no plan components for the Carolina gopher frog habitat connectivity. A desired condition needs to be added, along with criteria defining what is necessary for connectivity. Objectors “...disagree that waiting for a recovery plan is an acceptable approach to meeting NFMA obligations to contribute to recovery. A desired condition for connectivity needs to be added at the least.”

### Objector Proposed Remedy

A desired condition for connectivity needs to be added at the least.

### Forest Service Response

Section 219.9 of the 2012 Planning Rule—Diversity of Plant and Animal Communities states “[t]he coarse-filter requirements of the rule are set out as requirements to develop plan components designed to maintain or restore ecological conditions for ecosystem integrity and ecosystem diversity in the plan area.” This is accomplished by maintaining or restoring the composition, structure, processes, and ecological connectivity of an ecosystem.

The Carolina gopher frog is addressed in multiple SCC associates and desired conditions for the species are found in DC-ECO-2, DC-ECO-3, DC-ECO-4, as well as DC-SCC-2, DC-SCC-5, DC-SCC-6, and DC-SCC7. The revised plan in DC-SCC-2 calls for installing culverts that allow safe animal passage under roads in highly populated areas and creating, through other DCs it will also maintain high quality upland longleaf in Management Area 1. Carolina gopher frogs prefer migration routes that are fire-maintained, open canopy with few hardwood trees, small amounts of leaf litter, and large amounts of wiregrass. The associated desired conditions are found in DC-ECO-2 (Upland Longleaf and Loblolly Pine Woodlands), DC- DC-ECO-3 (Wet Pine Savanna and Flatwoods), ECO-4 (Depressional Wetlands and Carolina Bays) DC-SCC-5 (Mesic to Wet Pine Savanna and Flatwoods Associates), and DC-SCC-7 (Upland Pine Woodlands Associates). This species also needs rodent and crayfish burrows and holes left by rotting stumps for refugia. This is addressed in DC-SCC-1 (Wildlife Stump and Root Mound Associates). These actions provide sufficient pathways for gopher frog movement.

The desired Conditions for Ecological Sustainability in the Wando RIZ Ecosystem Restoration, which also contains Carolina gopher frog habitat, is to partner with adjacent landowners to provide habitat connections on approximately 1,200 acres across property lines.

There is no anticipated Recovery Plan for Carolina gopher frog since it is not listed as a federally Endangered or Threatened species.

The DC for Carolina gopher frog connectivity is adequately addressed in the revised plan. Therefore, no changes in the revised plan are needed.

### Instructions

N/A

## DESIRED CONDITIONS FOR HARDWOODS

DC-WAT-2. “Narrow forested swamps and floodplain forests occur adjacent to smaller blackwater streams and supply mid- to late-seral hardwood tree species and sufficient hardwood reproduction to assure sustainability of the mature hardwood forest.” Use of terms

like “sufficient” or “adequate” have the effect of deferring the decision to the project level with no guiding criteria.

*Objector Proposed Remedy*

The plan should also include a desired condition for hardwood reproduction that would assure sustainability.

*Forest Service Response*

DC-WAT-2 (watershed restoration) was mistakenly highlighted as the Desired Condition applicable to these stands by the objector. DC-WAT-2 references the desired condition of restoring hydrologic function and is not meant to be a descriptor of vegetation. Rather the applicable desired conditions are DC-ECO 7, DC-ECO 8, and DC-ECO 10. Flooding is the main ecological process in these areas, along with occasional fire during drought years.

DC-ECO-7, under Landscape Structure and Connectivity on page 33 of the revised plan, states "For cypress and tupelo, 4 to 8 percent of the forest is young age component (0 to 10 years). For other hardwoods and loblolly pine, the young age component of the forest is 8 to 12 percent."

Forest Plan Standards S2, S14, S15, S16, S17, S18, S19, S21, and S22 all provide for protections for riparian areas. Guideline G6 in the Forest Plan provides minimum stocking levels for reforestation and stand improvement treatments which would be applicable anywhere if a treatment were to occur. However, treatments are not prescribed within these "Narrow forested swamps and floodplain forests".

*Instructions*

In DC-WAT-2, revise to provide clarity for what constitutes "sufficient hardwood reproduction".

## LISTED PLANT SPECIES DESIRED CONDITIONS

The desired conditions for listed plant species include exploring opportunities to expand populations with the USFWS. That should have been done as part of this planning process to determine what the desired populations should be on the Forest to contribute to recovery of these species. This is another example of planning to plan being used in lieu of the planning needed to meet diversity requirements. The requirement for plan components to contribute to recovery cannot be met by simply stating that it would be discussed with another agency.

*Objector Proposed Remedy*

Objectors recommend that the final plan remedy this flaw.

*Forest Service Response*

The effects to federally-listed species are disclosed in the FEIS, beginning on pg. 145 for American Chaffseed, and continuing on pg. 148 for Canby's dropwort, and pg. 150 for pondberry. Subsequent correspondence with the forest revealed that the population objectives in the FEIS determination represent restoration objectives that would presumably address the concerns of the Defenders of Wildlife – for example, American chaffseed populations would increase from the current level of 4 populations to 9 populations, which would represent the upper end of the historical populations. Canby's dropwort would increase from one to three populations. The revised plan also addresses population dynamics, such as population sizes, extent and vigor, within existing populations.

The forest has addressed the issue, as well as meeting its ESA 7(1)(b) requirements through its discussion of direct, indirect and cumulative effects to federally listed species.

Instructions

N/A

#### USE OF NON-NATIVE PLANTS

DC-THR-1. "Guidance in the regional noxious and invasive weed strategy is considered during planning and implementation of projects." The plan needs to express more than hope that certain practices be applied to projects. The plan can and should demand it, and must where it is necessary to provide ecological conditions needed for at-risk species.

Objector Proposed Remedy

The final plan should identify the practices that are relevant and necessary for at-risk species and include them as standards or guidelines.

Forest Service Response

The revised plan includes direction to identify practices that would reduce impacts from invasive species. The desired condition "Guidance in the regional noxious and invasive weed strategy is considered during planning and implementation of projects" references the USDA Forest Service Southern Regional Framework for Non-Native Invasive Species that addresses all invasive species taxa including noxious and invasive weeds (terrestrial and aquatic).

The Forest addressed invasive species as a stressor and threat (§219.6, 219.8 and 219.10). In the assessment for ecological sustainability, key indicators for terrestrial and aquatic ecosystems identified invasive species as a stressor (FEIS, Appendix E, p. 105, p. 123). Non-native invasive species are listed as an indicator for all ecosystems (FEIS, Appendix E, and Table E-20 to Table E-4). The Forest identified species at-risk and linked those species to ecosystems in a coarse filter approach to the analysis (FEIS, Appendix E, and Table E-4 to E-15).

The revised plan includes plan components based on the assessment. DC-THR-1 (p. 52) identified desired conditions to reduce the acres occupied by invasive species through integrated management. The desired condition for all ecosystems (pp. 20-51) and rare plant

communities (p. 76, 83, 94, and 102) is that the occurrence of invasive species is low. Management strategies highlight treatment of invasive species in high-risk ecosystems identified in the assessment (OBJ-ECO-6, p. 120). Design criteria are focused on preventing the introduction and spread of invasive species, S34-36 (p. 125); G21-22 (p. 129); and G38-41 (p. 130-131). OBJ-SCC-3 (p. 108) prioritizes habitat restoration for declining species with federally-listed species given the highest priority. Within these areas, frequencies of prevention, early detection and rapid response, and integrated control efforts would be highest (FEIS, p. 221). Monitoring question #17 will evaluate trends for invasive species and if invasive species are threatening at-risk species (p. 144).

The impact of invasive plant species is considered throughout the FEIS analysis. Sections 3.3.4.4. to 3.3.4.7 (pp. 211-226 ) describe impacts from invasive species and how plan components will reduce the effects of invasive plants. Sections 3.3.1 (pp. 100 -139) identify invasive species as stressor to ecosystems. Sections 3.3.2 to 3.3.3 (pp. 139-193) also describe the effect of invasive species and related plan components to at-risk species.

The remedy by the Objector is to identify practices that are relevant and necessary for at-risk species and include them as standards or guidelines. The suggested remedy is not necessary because the revised plan and associated analysis sufficiently considered the impact of invasive species on ecological conditions needed for at-risk species. The revised plan includes desired conditions, objectives, standards, guidelines, and monitoring questions that address invasive species impacts on ecological sustainability and at-risk species. Within high priority ecosystem and areas with high-risk species the frequencies of prevention, early detection and rapid response, and integrated control efforts will be emphasized (FEIS, p. 221).

#### Instructions

N/A

### OLD GROWTH DESIRED CONDITION AND R8 OLD GROWTH GUIDANCE

DC-ECO-1 appears to establish a desired condition at the stand level that is described in the “Region 8 old growth guidance.” It needs to be clear that this is a specific current document, which we recommend be attached as an appendix to the plan. It cannot be a reference to a document that could be changed in the future outside of the planning process. This plan component also states that old growth would develop in “designated areas across the Francis Marion, such as ...”

#### Objector Proposed Remedy

The plan must identify all such areas where the desired old growth condition would occur. See 36 CFR 219.7(e): “The plan must indicate whether specific plan components apply to...areas as identified in the plan.

### Forest Service Response

DC-ECO-1 states that “During project-level planning, old growth conditions are maintained and restored to meet the Region 8 old growth guidance”, that “Reference old growth characteristics will develop in designated areas such as ...” and that “In the long term these areas will have abundant older age classes and exhibit old growth characteristics as displayed in the Region 8 old growth guidance.”

In the remedy proposed by the Objector, the Objector recommends that the “Region 8 Old Growth Guidance” be attached as an appendix to the plan. This is because a plan’s desired conditions cannot rely on a referenced document “that could be changed in the future outside of the planning process”.

The Region 8 Old Growth Guidance, however, does not establish or identify any “desired conditions”. The Region 8 Old Growth Guidance, which has been in place since 1997, provides information in two primary subject areas. One is to identify a process that the Forests should use in addressing old growth in their Forest Plans. The second is to provide descriptions of the criteria for identifying what constitutes an “old growth stand” in the different old growth community types found in Region 8. (The descriptions of the criteria for identifying “old growth” across the Southern Region, which were developed by Forest Service Research Scientists, comprise approximately 70 pages of the R8 Guidance document.)

There are no “plan components” in the Guidance that need to be incorporated into the revised plan. The revised plan does have a Desired Condition to maintain or restore “old growth conditions”. But these old growth conditions need to be defined and the revised plan identifies where to find a definition or description of “old growth conditions”, which is the Region 8 Old Growth Guidance. This Guidance document and its old growth definitions has been in place since 1997. If and when any new research indicates that these old growth descriptions need to be updated, the newly updated definitions would then become the latest “best available scientific information” that the Forests should use to define if stands have “old growth characteristics”.

### Instructions

N/A

## PLAN COMPONENT SPECIFICITY

The plan fails to meet the requirements of 36 CFR 219.9 because plan components are not specific enough nor sufficiently mandatory or regulatory to provide the certainty needed to meet legal requirements.

### Objector Proposed Remedy

None. All remedies proposed related to plan specificity were for specific parts of the plan and are included in other summaries.

### Forest Service Response

The objection is making an overall argument that the plan components are not specific enough to provide the certainty needed to meet the ecosystem integrity and species-specific requirements of 36 CFR 219.9 (Diversity of plant and animal communities). It is argued that desired conditions are not specific enough and that desired conditions do not provide the certainty of standards. Also that the plan “defers decisions about at-risk species to discretionary project-level decision-making.”

The revised plan contains specific desired conditions for the various ecosystems found on the Forest, which includes descriptions of the desired composition, structure, ecological processes, landscape structure and connectivity, and responses to various stressors. There are also specific desired conditions for the species groups of all the at-risk species on the forest. These desired conditions outline what are the conditions necessary to maintain or restore their ecological integrity, or the ecological conditions necessary to address the needs of the at-risk species.

While desired conditions outline the conditions to strive for to meet the requirements of 219.9, standards and guidelines are then identified to provide sideboards to the projects being designed to meet those desired conditions. Often times, the “sideboards” that are needed vary because of site-specific situations, and are therefore best identified at the project level. It is through this series of “staged decisionmaking” that all together provides the management requirements necessary to meet the ecological integrity and species-specific requirements of 219.9.

The process of “staged decisionmaking” is described in the Final Programmatic Environmental Impact Statement for the 2012 Planning Rule (see pages 77-78). The first stage is the development of the planning rule itself where the planning rule “sets out requirements for development, revision, and amendment of land management plans.” The second stage of decisionmaking is the development of a land management plan. A land management plan “sets out a framework with sideboards to guide all natural resource management activities on a NFS unit”. A land management plan is a “programmatic decision that identifies desired conditions, sets goals and objectives, establishes standards and guidelines, and determines what and how often to monitor certain conditions.” “A plan guides the choice and design of future proposals for projects and activities in a plan area but typically does not authorize projects or activities, nor commit the Forest Service to take action.” A plan can however, constrain the Agency “by prohibiting the authorization of certain types of projects or activities or limiting the manner in which they may be carried out in all or part of the plan area”. Yet, “as the multiple-use principle necessitates a broad decision space for plans, plans will also provide broad decision space.”



The third stage of decisionmaking involves “authorizations of on-the-ground projects and activities. Decisions in this third stage must be consistent with the applicable land management plan”.

The planning rule at 36 CFR 219.15(d) goes on to define how on-the-ground projects must be consistent with the land management plan. This section of the planning rule states that “Every project and activity must be consistent with the applicable plan components.” The rule then further defines what it means to be “consistent” with the various plan components. For Goals, Desired Conditions and Objectives – “the project or activity contributes to the maintenance or attainment of one or more goals, desired conditions, or objectives, or does not foreclose the opportunity to maintain or achieve any goals, desired conditions, or objectives over the long term”. For Standards – “the project or activity complies with applicable standards. For Guidelines – The project or activity “complies with applicable guidelines as set out in the plan”, or “is designed in a way that is as effective in achieving the purpose of the applicable guidelines.”

When a Forest Plan provides Desired Conditions and Objectives to move the Forest toward certain ecological conditions or species habitat needs, those cannot be ignored. Any project being developed must be consistent with those desired conditions and objectives. A project cannot be contrary to those desired conditions and objectives. Those desired conditions and objectives also provide the rationale and purpose and need for a project proposal. A project wouldn’t be proposed if it isn’t designed to meet at least one of the Forest Plan’s desired conditions or objectives. The Forest Plan does allow flexibility for the rate of implementation in achieving the various desired conditions and goals, but doesn’t allow for anything that would be contrary to meeting those desired conditions and objectives. Standards and guidelines, on the other hand, are meant to provide various kinds of sideboards or limitations to how a project is designed. A standard doesn’t compel an action to take place. It only ensures that once a project is proposed, that action can only occur within certain limitations. In order to create, enhance, or maintain the ecological conditions necessary for at-risk species, it is the desired conditions and objectives that will be the means for the Forest to take those actions. It is not standards or guidelines that will compel these actions/activities to occur.

The revised plan contains the Desired Conditions and Objectives needed to address the Forest’s at-risk species. Then when it is necessary to provide any limitations on how a project might be designed, then the appropriate standards and guidelines have been provided.

#### Instructions

N/A

### RCW CONSISTENCY WITH DEFINITION OF FORAGING HABITAT

DC-T&E-2 Includes the following description of stand conditions needed for 450 clusters:

High quality nesting and foraging habitat occurs as upland pine and wet pine savanna ecosystems within 0.5 miles of cluster centers and includes large, live old pines which provide cavity trees for nesting, low densities of small pines, little to no hardwood mid-story, and diverse and abundant herbaceous ground-cover.” However, this is not the condition included in the recovery standard for federal lands in the RCW Recovery Plan. Instead it adds that, “Guidelines in the most recent Recovery Plan in the management of cavities, clusters, foraging habitat, and monitoring are considered during project development. A desired condition that something be considered amounts to no direction at all, and cannot be relied on to contribute to the recovery of the RCW.

#### Objector Proposed Remedy

Projects must be consistent with the forest plan’s definition of what constitutes RCW foraging habitat, and therefore a proper definition from the recovery plan must be included in the forest plan.

#### Forest Service Response

The 2003 RCW recovery plan on page 188 describes good quality foraging habitat as, “has some large old pines, low densities of small and medium pines, sparse or no hardwood midstory, and a bunchgrass and forb groundcover.”

DC-T&E-2 in the revised plan describes nesting and foraging habitat as, “High quality nesting and foraging habitat occurs as upland pine and wet pine savanna ecosystems within 0.5 miles of cluster centers and includes large, live old pines which provide cavity trees for nesting, low densities of small pines, little to no hardwood mid-story, and diverse and abundant herbaceous ground-cover.”

These two definitions of foraging habitat are almost identical and the forest did provide the proper definition from the recovery plan. The recovery plan goes on to list required detailed habitat components. The USFWS realized the shortcomings of one foraging recovery standard across the entire range of the species and on May 4, 2005 issued implementation guidance for use of the foraging habitat standards presented in the red-cockaded woodpecker recovery plan.

On page 5 of the guidance document dated May 4, 2005, the USFWS memorandum specifically mentions the Francis Marion National Forest. It states:

“In very rare circumstances, and on a case-by-case basis with support of local demographic data (e.g., comparing mean group size and reproductive output of affected groups with population means), it may be appropriate for an action agency to make an “is not likely to adversely affect” determination for projects that reduce foraging habitat in partitions that: (1) currently do not meet the managed stability standard, or (2) are currently above but will go below the standard post-project.

Populations or select geographic areas where this may be applicable, because birds have adapted to habitat conditions not meeting the managed stability standard, may include forests devastated by hurricanes, e.g., the Francis Marion National Forest, or habitats comprised of very low basal area and with smaller diameter trees, e.g., south central Florida. In these cases, further small, i.e., discountable or insignificant, reductions of foraging habitat may not result in loss of groups, given the local evidence that many groups, after multiple generations, have adapted to habitat below the managed stability standard.”

The revised plan reflects what is addressed in the recovery plan. However, the Forest Service has a legal obligation under ESA section 7(a)(1) to implement programs to conserve listed species. Merely considering the recovery plan does not meet this obligation so the desired condition should be clear about the commitment.

#### Instructions

For DC-T&E-2, page 42 of the revised plan, change the last sentence to **“Project development is based on implementing guidelines in the most recent Recovery Plan in the management of cavities, clusters, and foraging habitat.”** Currently this sentence is “Guidelines in the most recent Recovery Plan in the management of cavities, clusters, foraging habitat, and monitoring *are considered during project development.*”

#### RCW CAVITY TREES

DC-MA-2-1 states for stands within RCW clusters that, “All potential cavity trees (pines greater than 60 years in age) within clusters are retained, unless pine basal area is above 50 sq ft and all trees are above 60 years in age.” Since this refers to conditions retained after completion of project management activities, this should also be included in the plan as a standard to provide additional certainty. There is no reason to simply state this as a desired condition.

#### Objector Proposed Remedy

This should also be included in the plan as a standard to provide additional certainty. There is no reason to simply state this as a desired condition.

#### Forest Service Response

The objector’s proposed remedy is already included as a standard, S33 found on page 125 of the revised plan. S33 is “Retain all potential red-cockaded cavity trees (pines greater than 60 years in age) within RCW clusters, unless pine basal area is above 50 feet<sup>2</sup>/acre and all trees are above 60 years within the clusters; protect RCW cavity trees by shielding cavities with restrictors, painting known cavity trees with highly visible paint, or replacing lost cavities with artificial ones.”

#### Instructions

N/A

## RCW HABITAT PROTECTION STANDARDS

We agree with this statement in DC-ECO-2, “Where open loblolly pine woodlands provide high-functioning nesting and foraging habitat for red-cockaded woodpeckers and other plant and animal species, the conditions are maintained.” We don’t understand why there is not a standard that requires this of vegetation management projects.

### Objector Proposed Remedy

We recommend the inclusion of such a standard in the plan.

### Forest Service Response

DC-ECO-2 states, “Open, loblolly pine-dominated woodlands, which support diverse plant and animal communities, will occur until conversion to longleaf pine can be completed. Where open loblolly pine woodlands provide high-functioning nesting and foraging habitat for red-cockaded woodpeckers and other plant and animal species, the conditions are maintained. In the long term, loblolly pine forest types are converted to longleaf pine.”

This is backed up by statements in OBJ-ECO-3:

“Loblolly Pine Base Levels: Maintain ecologically functioning loblolly pine woodlands on 49,000 acres by using the ecological processes of landscape-level, frequent, low-intensity prescribed fire or by using other vegetation management practices to reach desired densities.”

“To restore longleaf pine on xeric to mesic sites, different approaches are needed depending on the existing conditions:

- Open loblolly pine-dominated flatwoods and savannas would be maintained to provide suitable habitat conditions for at-risk species until conversion to longleaf pine can be completed in the long-term.”

The revised plan lays out a desired condition and objective for maintaining open loblolly pine woodlands providing high-functioning nesting and foraging habitat for red-cockaded woodpeckers and other plant and animal species, but no standard or guideline to ensure the objectives are met. As discussed earlier under the Adaptive Management and other related issues, the desired conditions and objectives will be the drivers for the management actions on the Forest to restore, enhance or maintain the ecological conditions. The standards and guidelines will provide any needed “sideboards” to proposed management activities. A standard doesn’t compel an action to take place. It only ensures that once a project is proposed, that action can only occur within certain limitations.

### Instructions

Add a guideline to help ensure that in MA-1, open loblolly pine woodlands providing high-functioning nesting and foraging habitat for red-cockaded woodpeckers and other plant and

animal species are maintained. Loblolly pine forest types are converted to longleaf pine over time.

#### RCW TREE CUTTING CRITERIA

Standard S38 allows cutting of active RCW trees if authorized by the USFWS. G36 is similar. This appears to pass the buck for responsibility for NFMA compliance to the ESA process and agency (USFWS).

##### Objector Proposed Remedy

This might be satisfactory if the plan also included criteria for when such authorization would be appropriate; we therefore recommend the inclusion of such criteria in the plan.

##### Forest Service Response

S38 and G36 are not NFMA components. Cutting active RCW cavity trees (S38) and using mechanical equipment in RCW clusters during the nesting season (G36) would be considered take under ESA, and would require formal consultation (i.e. receive incidental take authorization) with USFWS prior to taking action. This is a required action based on the implementing regulations of the ESA. Additional clarification may clear up the confusion.

##### Instructions

Reword S38 as follows: Active RCW cavity trees will **only be cut for insuring public/employee safety. Written authorization from USFWS is required after project-level consultation. Prior to cutting an active RCW cavity tree, it must be replaced with an artificial cavity.**

Reword G36 as follows: G36. Do not allow any mechanical activities within active red-cockaded woodpecker clusters during the nesting season (April 1– July 31). Exceptions may be made at the project level with **written authorization** from the U.S. Fish and Wildlife Service, after project-level consultation.

Reword S32 as follows: **Ensure each RCW in an active cluster has a suitable cavity, but maintain a minimum of 4 suitable cavities at all times.**

#### RCW PLAN COMPONENTS

OBJ-T&E-2 is accompanied by the following management strategy: Every project with the potential to affect RCW, will consider the terms and conditions of the biological opinion, and guidelines in the most recent species recovery plan.

This is a “management strategy” so it carries no weight in meeting diversity requirements, but it illustrates the unwillingness of the Forest to plan for at-risk species.

##### Objector Proposed Remedy

In order for this (or any) forest plan to contribute to recovery of a listed species, it must include plan components to provide the ecological conditions needed by that species. It cannot defer to requirements imposed by the ESA at either the plan or project level; it must adopt them.

In addition, it is not clear what biological opinion is being referred to here. If it is for the forest plan, any mandatory requirements must be included as plan components. Previous project biological opinions should also be reviewed, and any requirements imposed on projects should be strongly considered for inclusion in the forest plan to govern future projects. If it is referring to consultation on future projects, the suggestion that mandatory terms and conditions should merely be “considered” is likely to lead to a violation of ESA and therefore should be remedied in the plan.

#### Forest Service Response

The revised plan provides the ecological conditions needed to aid recovery of this species (DC-ECO- 2 and 3 (pp. 22-26); DC-MA2-1 (pp. 39 – 40); DC-T&E-2 (p. 42); OBJ-ECO- 2 and 3 (pp. 105 – 106); OBJ-T&E-2 (pp. 107 – 108); S1 – S7 (pp. 121 – 122); S 32, 33, and 41 (p. 125); G 4 – 7 (pp. 127 – 128) and G36 (p. 131).

The biological opinion referenced is for the forest plan revision. Any Reasonable and Prudent Measures and Terms and Conditions are mandatory, nondiscretionary, and will be incorporated into the revised plan in the ROD, as addressed in this document. Objective OBJ-T&E-2 needs to be revised.

#### Instructions

For OBJ-T&E-2, page 107 of the revised plan, change the second paragraph to “**Management Strategy:** The forest supports a recovered population for the red-cockaded woodpecker in upland longleaf and wet pine savanna ecosystems within Management Area 1 and contributes towards range-wide recovery efforts. **Every project with the potential to affect RCW, will implement the Reasonable and Prudent Measures and Terms and Conditions in the biological opinion, and guidelines in the most recent species recovery plan. If site specific conditions do not allow for the implementation of the Reasonable and Prudent Measures and Terms and Conditions or conditions dictate a different management strategy, project-level formal consultation will be reinitiated with USFWS. A project specific decision will not be signed until the Forest Service has received a project specific non-jeopardy biological opinion.**” Currently the second paragraph ends with the sentence “**Every project with the potential to affect RCW will consider the terms and conditions of the biological opinion and guidelines in the most recent species recovery plan.**”

#### ROAD DENSITY

DC-ECO-4 addresses the effects of roads on the at-risk species for which this ecosystem characteristic is important: “open road and OHV trail densities within 0.5 miles of these systems

are low to moderate.” This is another reduction in specificity from the draft plan (“less than 1 mile per square mile”) made in this case because, “this measure would be impractical to implement by ecosystem” (draft ROD, p. 21). We disagree because road density is commonly included in forest plans. The area to which it is applied can be defined in a way that is practical to implement.

#### Objector Proposed Remedy

The plan needs to define what “low” and “moderate” are, instead of leaving that up to the discretion of future project decision-makers. (The same terms are used to characterize road densities for other ecosystems.)

#### Forest Service Response

Many earlier forest plans did have open road densities (ORD) as standards, but as these plans were being implemented, it became clear that having an ORD as a standard created numerous implementation challenges. Too many variables have to be defined in order to meet such a standard, such as – How do you define the boundary of the area to calculate the ORD? Which roads are included in the ORD calculation and what roads, if any, do not count? If roads are used to define a boundary of an ORD “analysis unit”, are those roads included in the ORD calculation? Consequently, many of the newer forest plans have tended to steer away from having any ORD standards but instead included some level of a desired ORD.

For the Francis Marion revised plan, many desired conditions did identify a level of ORD that would be desired. While the Draft ROD is correct that trying to use ecosystems as an “analysis unit” to calculate an ORD is impracticable, the Objector does have a valid point that “low” and “moderate” should have some kind of reference point so that the field implementers have a general idea of what level of road density is desirable.

#### Instructions

Add definitions for “low” and “moderate” road densities in the Desired Conditions for DC-ECO-4

### SCC OPTIMAL HABITAT

DC-SCC-4 is that, “Optimal habitats for associated at-risk species are maintained and restored.” This clearly begs the question of what the optimal habitats for these species are. It is not answered in the plan, nor does the plan establish any guidance for how to answer the question during project planning.

#### Objector Proposed Remedy

We recommend the inclusion of such guidance.

#### Forest Service Response

Habitat descriptions can be found in Section 2.1.3 of the revised plan [Species Diversity, pp. 41-49]. For example, the forest plan describes the following conditions for Mesic to Wet Pine Savanna and Flatwoods Associates, under DC-SCC-5:

High quality mesic to wet pine savannas provide optimal habitat for the highest number of at-risk amphibians, birds, mammals, pollinators, reptiles and vascular plants, particularly within designated plant rare communities (Awendaw Savanna, Wardfield Savanna, Little Wambaw Marl Savanna, Halfway Creek Savanna, Gumville Road Savanna, Compartment 140, and Compartment 149 savannas). (See map of rare plant communities in Appendix E). Most wet longleaf pine savannas are moderate in size (50-100 acres), but some are large, particularly in the 666-acre Compartment 140 complex and the 678-acre Compartment 149 complex). Herbaceous groundcover is intact, contains a high diversity of native forbs and benefits native pollinators. Other small high-quality wet longleaf pine savanna remnants along Bullhead Road (3.5 acres and 11.5 acres) provide habitat for the uncommon sweet red pitcher plant, Carolina fluffgrass and crested fringed orchid. Frequent prescribed fire is used to maintain intact. [sic] Flooding and associated excess rainfall are primary ecological drivers in these habitats and provide from semi-permanent conditions in the wettest floodplains to intermittent, short term or ephemeral condition in higher gradient streams. Non-native invasive species have a low incidence across the landscape and open road densities are moderate to low. [p. 46-47]

Additional habitat requirements for at-risk species are detailed in Sections 3.3.2 and 3.3.3 of the FEIS (pp. 139 – 226). For example, for the Frosted Flatwoods Salamander (*Ambystoma cingulatum*), the FEIS describes the following desired condition:

The frosted flatwoods salamander is a mole salamander which breeds within seasonally flooded isolated wetlands embedded within fire-maintained pine woodlands and savannas. This salamander burrows near water or moves about under debris on the forest floor. It is carnivorous and an opportunistic feeder, primarily eating earthworms and arthropods. The species needs shallow winter flooded isolated wetlands to breed and for larvae to develop. It also needs fire maintained pine uplands for the remainder of its life cycle. As with most pond breeding amphibians, the species does not do well in wetlands that contain fish. The timing and frequency of rainfall is critical to the successful reproduction and recruitment of flatwoods salamander (Final Rule for Listing, 1999). Surviving populations are currently threatened by habitat loss and degradation from agriculture, urbanization, and various silviculture practices (Final Rule for Listing 1999) (pp. 159-160).

The forest has adequately described the optimal habitats for at-risk species.

#### Instructions

N/A

### WATER QUALITY DESIRED CONDITION



The desired condition for water quality is that it “remains within a range that ensures survival, growth, reproduction and migration of aquatic and riparian-dependent species.” How can compliance with this desired condition be determined? What is that range, and what management actions or restrictions are needed where water quality is not within it? This desired condition also states, “New and replaced road and trail stream crossings are evaluated for aquatic organism passage.”

#### Objector Proposed Remedy

There is no reason for this to be only a desired condition when including it as a standard as a prerequisite for work on stream crossings would provide improved certainty; we recommend that the plan reflect this. We also believe that the standard should require aquatic organism passage instead of just considering it. Similarly, the language desiring that livestock grazing does not occur in riparian management zones should be a standard. These are not included in S22.

#### Forest Service Response

§ 219.8 (a) Air, soil, and water. The plan must include plan components, including standards or guidelines, to maintain or restore: (iii) Water quality. The Francis Marion Plan meets these requirements in 4.2.1.4 Standards for Riparian Management Zones. Stream crossings are covered in S23 (Allow skidders to cross channels only at designated crossings) and S24 (Do not construct new motorized trails within ephemeral stream zones except at designated crossings or where the trail location requires some encroachment). These standards address this issue. Standard S15 addresses grazing “Do not allow livestock grazing, feeding troughs, watering troughs or salt and mineral blocks inside the riparian management zone or within 50 feet of channeled ephemeral streams.”.

These questions are also addressed in the FEIS, 3.2.5.7 Affected Environment: Water Quality.

Having a standard that would require aquatic organism passage (AOP) on new and replaced road and trail stream crossings rather than evaluated for AOP is not advisable because it is not reasonable nor desirable to require AOP on all projects. For example, in some cases AOP could open up areas to aquatic invasive species.

#### Instructions

N/A

#### DESIRED CONDITIONS FOR AQUATIC PASSAGE

DC-THR-3. “The impacts of existing dikes and dams on aquatic passage and wetland habitats are considered along with the potential movement of sea water further inland are carefully considered during project-level planning.” These factors should have been considered in the process of developing the revised forest plan.

#### Objector Proposed Remedy

We expect to see the final plan express desired conditions of impacts at some reduced level, objectives for improving aquatic passage, and some kind of strategy that responds to the possibility of saltwater intrusion.

#### Forest Service Response

The above-mentioned factors were indeed considered in the process of developing the revised plan. The FEIS, page 26, indicates that these factors were considered when the statements are made that “The forest plan increases opportunities to improve hydrologic function... activities may include... adding culverts under dikes to restore water flows... existing dikes may be retained to limit saltwater influx where hydrologic modifications are causing saltwater entry beyond historic conditions (such as at lower Santee River)”. DC-THR-3 (pg. 53, revised plan) addresses the “Response to Rising Sea Level and Salt Water Intrusion”.

The objector states an expectation that the revised plan should include 1) “desired conditions of impacts at some reduced level”, 2) “objectives for improving aquatic passage”, and 3) “some kind of strategy that responds to the possibility of saltwater intrusion”.

1) The revised plan already includes desired conditions for impacts at some reduced level. These conditions can be found on pp. 49- 50. One example can be found in DC-WAT-2 on p.49 where it states that “Water flows are relatively unimpeded by obstructions” and “hydrologic function of wetlands and other groundwater-dependent ecosystems are maintained and restored”. Another example is found in DC-WAT-4 on p.50 where it states “Watershed indicators and attributes that are rated poor, such as aquatic passage... are improved...” Since desired conditions of impacts at reduced levels already exist, there is no need to add additional conditions.

2) An objective for improving aquatic passage is already included in the revised plan. This is found in OBJ-WAT-2 on p.109 which states, in part, that “Improvements to aquatic habitats will include 5 aquatic organism passage projects”. Since an objective for improving aquatic passage already exists, there is no need to add an additional objective.

3) Salt-water intrusion refers to seawater moving into groundwater. Salt-water influx refers to seawater moving inland through rivers and streams. These definitions and use of these terms could be clearer. A strategy that responds to the possibility of saltwater influx is included in the revised plan. This is the Adaptive Management Strategy for Monitoring Question 25 ([MQ 25], pg. 147, revised plan) of the monitoring plan. MQ 25 addresses sea level rise, which could cause salt-water influx. There is no strategy addressing salt-water intrusion.

#### Instructions

- Change language in the revised plan to ensure the terms “salt-water intrusion” and “salt-water influx” are used appropriately
- Add definitions of “salt-water intrusion” and “salt-water influx” to the Definitions (Appendix G)

- Add language addressing salt-water intrusion to the applicable columns for MQ25 in Table 5-1, Monitoring questions and indicators for the Francis Marion monitoring plan (pg. 147, revised plan).

## AQUATIC AND RIPARIAN ECOSYSTEM DESIRED CONDITIONS

S20. “Prior to authorizing or re-authorizing municipal, public service or commercial water withdrawal permits or diversions of water from streams, lakes, wetlands, or groundwater, determine the environmental flow or level (surface water levels or groundwater levels) needs sufficient to protect stream processes, aquatic and riparian habitats and communities, groundwater-dependent ecosystems, and recreation and aesthetic values.”

### Objector Proposed Remedy

The forest plan must provide a basis for a project determination of what is sufficient by providing the specific desired conditions applicable to aquatic and riparian ecosystems. Leaving this determination entirely to professional judgment defeats the purpose of planning.

### Forest Service Response

The objector states that “The forest plan must provide a basis for a project determination of what is sufficient [for protecting stream processes, aquatic and riparian habitats and communities, groundwater-dependent ecosystems, and recreation and aesthetic values] by providing the specific desired conditions applicable to aquatic and riparian ecosystems”. Desired conditions applicable to aquatic ecosystems and riparian management zones are found on pp. 36-38 of the revised plan. These desired condition are specific enough to provide the basis for what is sufficient for protecting the various processes, ecosystems, and values. Since the revised plan already addresses the issue, no further action is necessary.

### Instructions

N/A

## HYRDOLOGIC FUNCTION PLAN COMPONENTS

DC-WAT-1. “Improvements to the hydrologic function of wetlands and streams and aquatic habitats are considered during project-level planning across the forest. Riparian Management Zones (RMZ), which are approximately 100 feet from the edges of all perennial streams and lakes, and 50 feet from all intermittent streams, receive special consideration during project level planning to maintain hydrologic function and restoration of ecosystems.” This is out of compliance with the Planning Rule.

### Objector Proposed Remedy

This desired condition will not be effective unless there are additional plan components that specify what this special consideration is; we recommend that those additional components be added to the final plan. Similarly, DC-SCC-10 includes water quality that “maintains habitat quality for at-risk aquatic species.” That is not defined here or elsewhere in the plan, other than as “hydrologic function.” The plan needs to explain how the achievement of this condition can occur and be determined.

#### Forest Service Response

The concern is that DC-WAT-1 will not be effective if there are not additional plan components specifying what “special consideration” is for Riparian Management Zones (RMZs). The revised plan already contains plan components, in the form of standards and specific direction that apply to RMZs. These are found primarily on pp. 123-124 of the revised plan. There is no need to add additional plan components in order for the desired condition to be effective.

The objector also raises the point that the plan needs to explain how water quality that maintains habitat quality for at-risk species can occur and be determined. DC-SCC-10 on p.48 states that “Water coming from national forest land meets state water quality standards and maintains habitat quality for at-risk species”. South Carolina’s state water quality standards state that “Narrative biological criteria shall be consistent with the objective of maintaining and improving all surface waters to a level that provides for the survival and propagation of a balanced indigenous aquatic community of fauna and flora” (South Carolina Department of Health and Environmental Control, R.61-68 Water Classifications & Standards, pg. 29).

At-risk species associated with DC-SCC-10 are identified in Appendix D, Table D-3, under River and Stream Associates (pp. 167-170), and individual at-risk species are associated with both desired conditions and management objectives in the subsequent Table D-4 (pp. 171-184). Objectives for at-risk species in general are described in Section 3.1.2 Species Diversity (pp. 108-109), which prioritizes habitat restoration for declining species by the at-risk category and the number of population occurrences, and details specific actions to conserve at-risk species, including monitoring populations, population enhancements [including population genetics], conducting inventories for at-risk species, maintaining databases, and aligning land ownership to improve connectivity for at-risk species. These objectives conserve and provide habitat for at-risk species. There is no need for additional language in the revised plan explaining how water quality that maintains habitat quality for at-risk aquatic species can occur or be determined.

#### Instructions

N/A

### DESIRED CONDITIONS IN THE WANDO RESOURCE INTEGRATION ZONE

A completely circular desired condition is found in DC-RIZ-Wando-1: “Desirable hydrologic, ecologic and social conditions are maintained and restored in the Guerin Creek/French priority watershed.”

*Objector Proposed Remedy*

This clearly needs to be clarified in the final plan.

*Forest Service Response*

The issue is whether desired conditions in DC-RIZ-WANDO-1 need to be clarified beyond the “desirable hydrologic, ecologic and social conditions” that is currently stated in the desired condition. The revised plan already provides more clarity for the hydrologic and ecologic conditions in DC-WAT-1, DC-WAT-2 and DC-WAT-4 (pp 49-50, revised plan), and in the ecosystem maintenance and restoration section (pp 20 – 39, revised plan). More clarity for the social conditions is found in DC-RIZ-WANDO-2, Desired Conditions for Social, Cultural and Economic Sustainability (pg. 81, revised plan). No further clarification is needed beyond what is already present in the revised plan.

*Instructions*

N/A

## NETWORK OF FUTURE OLD GROWTH

OBJ-ECO-1. “Over the next 10 years, identify a network of small (between 1 and 99 acres) and medium (between 100 and 2,499 acres) areas providing future old growth conditions during project or activity planning.” This makes it clear that the plan delegates that programmatic decision to project-level decision-makers to make such decisions sometime in the future, or not (there is no requirement that objectives be achieved). This also reveals that the revised plan does NOT currently provide old growth ecological conditions needed for at-risk species.

*Objector Proposed Remedy*

While we agree that the location of old growth is not static, we expect to see mandatory criteria that would immediately protect sufficient existing old growth, as well as provide a desired amount and distribution that would be maintained over time. For example, the “management strategy” could be converted to an actual plan component that would require “old growth reference conditions” to be maintained where they exist within foraging partitions. Areas meeting the age thresholds of the Region 8 old growth Guidance but not other characteristics would be maintained or enhanced as future old growth. It is irresponsible to designate young forest areas as future old growth while resetting the clock on near old growth. Finally, any areas designated as future old growth in projects under the previous plan must be maintained as future old growth under the current plan, because development of old growth conditions takes longer than a single planning cycle.

### Forest Service Response

This issue has two components. One concerns a question about delegating old growth determinations to the project-level, while the other concerns providing the old growth ecological conditions needed for at-risk species.

In addressing this issue, it is first important to describe how the Region 8 Old Growth Guidance was used to address the “old growth issue” in forest plans. The Guidance is for forest plans to 1) identify a network of “medium-sized” (greater than 100 acres) and “small-sized” (less than 100 acres) old growth areas, 2) have a representation of all potential old-growth forest community types, and 3) provide for a distribution of old growth areas across the National Forest (Region 8 Old Growth Guidance, pp. 17-18).

In following the Region 8 Old Growth Guidance, the revised plan incorporated Desired Condition ECO-1 – Old Growth Conditions, found on page 22. DC-ECO-1 states that the desired condition during project-level planning is that “old growth conditions are maintained and restored to meet the Region 8 old growth guidance.” The revised plan also has Objective ECO-1 – Old Growth Conditions (revised plan, p. 105). OBJ-ECO-1 states that “Over the next 10 years, identify a network of small (between 1 and 99 acres) and medium (between 100 and 2,400 acres) of areas providing old growth conditions during project or activity planning.”

In meeting this desired condition and objective, the FEIS on page 207 identifies that the following land allocations in the revised plan will be “old growth compatible” in that the lands are either already old enough to be considered for old growth, or will eventually become old growth. These allocations include wilderness, riparian management zones, select special and designated areas (including the inventoried roadless areas) and the forested acres in the unsuited land base. Most of these allocations are greater than 100 acres in size, and will therefore contribute toward providing “medium size” patches of old growth across the landscape.

The revised plan also has Standard 37, which states that “Stands meeting the criteria of old growth as defined in the Region 8 Old Growth Guidance will be identified during project level analyses.” Then for any stands that are identified as meeting the criteria, the Forest is to “Consider the contribution of existing old growth communities to the future network of small and medium-sized areas of old growth conditions including the full diversity of ecosystems across the landscape (revised plan, p. 125). This standard is the plan direction for identifying the “small-sized” old growth areas described in the Region 8 Old Growth Guidance document. Since this “identification” involves conducting stand-specific inventories, and the forest does not have a complete site-specific inventory of all stands across the National Forest, these “small sized” old growth areas cannot be identified at the plan level. Instead, these small-sized old growth areas need to be identified whenever there is an opportunity to conduct stand-specific inventories, which usually only occurs during project-level planning efforts.

An inventory of lands that currently contain “old growth characteristics” is not available, however the FEIS in Table 3-51 (p. 207) does show that as of 2013, there were 10,046 acres of “possible old growth” that are at least 110 years old across the Forest, and 32,283 acres of

“possible old growth” that are at least 100 years old. (These acres are called “possible old growth” because they were identified based only on age. There are numerous other factors to inventory before they can be classified as “existing old growth”.)

The FEIS in Table 3-53 (p. 208) also shows how much of each forest ecosystem will likely become old growth. The table illustrates that for each forest ecosystem on the forest, there will be at least 18% and up to 78% of the acreage in allocations that will provide for old growth characteristics, if not now, then sometime in the future.

As for the claim that the revised plan does not provide for the old growth ecological conditions needed for at-risk species, there needs to be a distinction made between “old growth” versus “late-successional”. For a stand to be identified as “old growth” it needs to meet the criteria identified in the Region 8 Old Growth guidance, which includes a number of criteria beyond just the age of the stand. On the other hand, “late-successional” is based on the age of the stand. The Old Growth guidance document identifies that “to date no species or species group has been identified as being obligate to old-growth forest communities. However, old-growth forest communities may serve as optimal habitat for some species associates” (p. 12).

Appendix E of the FEIS, the Ecosystems and Species Diversity Report creates a little bit of confusion with respect to the above distinction since it identifies as one of the indicators used to evaluate ecosystems and system diversity: “Percent of the Ecosystem Meeting Age Criteria for Old Growth ( $\geq$  100 years)”. It describes this indicator as – “An older forest or old growth component across the landscape was identified as a key characteristic of all ecosystems important for ecological integrity and habitat for many wildlife species.” However, it goes on to clarify that “Existing information is based on the dominant ages of stands in the Forest Service Timber Vegetation database and does not address structure, function, or composition above and beyond age of the oldest age class of trees” (p. 102). So what is really being tracked are acres of late-successional habitat instead of acres of “old growth”.

These distinctions are being made to point out that there are no “old growth” requirements for at-risk species, but there are at-risk species that are dependent on late-successional conditions.

As identified above, the FEIS shows that for each ecosystem on the forest, there will be at least 18% and up to 78% of the acreage in allocations that will provide for old growth characteristics, if not now, then sometime in the future. The FEIS also shows that by the end of the first decade the percentage of lands in the greater than 100 years old age class across the Forest will increase from 10% to 18%, and after 50 years, the percentage of lands in the greater than 100 years old age class will be around 33% of all the Forest acres (see pages 229-230). So late-successional habitats for at-risk species will be provided across the forest.

There are essentially three remedies proposed. One is to immediately protect existing old growth. The other is to have a plan component that areas meeting the age thresholds of the Old Growth Guidance be maintained or enhanced as future old growth. The last remedy is that any areas designated as future old growth in projects under the previous plan be maintained as future old growth under the current plan.

The first remedy of a standard to protect existing old growth is addressed under the Issue of “Ten Percent Old Growth Objective and Standard to Protect Old Growth”, where Standard 37 of the Revised Plan is to be reworded.

The second remedy is suggesting the forest should have a plan component that would treat any acre that reaches a certain age as old growth. Such a proposal would not be workable as over the long term, within 10 years – 18% of all the forested acres and within 50 years – 33% of all the forested acres would end up being treated as old growth. Having such a large component of the forest managed as old growth would constrain the forest’s ability to meet other desired conditions, management needs identified in the revised plan.

The third remedy is not applicable because the 1996 plan was approved before the Region 8 Old Growth Guidance was established (1997). Consequently, the existing forest plan did not require existing or future old growth to be identified during project planning, so old growth areas were not identified and locations of these areas are currently unknown. Only a preliminary inventory based on age has been conducted as part of the assessment.

During the discussions with the Objectors, it became apparent that the plan components did not clearly describe how the “network” of small and medium-sized old growth areas will be provided for across the landscape.

#### Instructions

- Revise DC-ECO-1 to better describe how the Forest Plan will provide for this network of old growth areas.
- Include in the Monitoring Program a provision to monitor the progress of providing for a network of old growth areas across the landscape.

#### PLAN COMPONENTS NEED TO PROVIDE FOR ECOLOGICAL INTEGRITY

DC-ECO-10. “The natural range of instream flows is maintained to support channel function, floodplain function and aquatic biota habitat and movement.... Streams are in dynamic equilibrium (i.e.; stream systems function within natural ranges of flow, sediment movement, temperature and other variables) ... The combination of geomorphic and hydrologic processes with land management activities within the watersheds creates a diverse physical environment, which maintains function and fosters biological sustainability and diversity. The physical integrity of aquatic systems, stream banks and substrate (including shorelines, flow permanence and other components of habitat) is intact and stable.”

#### Objector Proposed Remedy

This desired condition restates the requirements for ecological integrity, but there are no other plan components that articulate what the plan would actually do to accomplish this; we recommend the inclusion of such components in the final plan. This is a rare reference to the



requirement for plan components to provide ecological integrity by providing conditions within the natural range of variation (NRV). However, it simply restates the legal requirement and sheds no light on what the natural range of instream flows or other variables are or how or when they would be determined. This information must be provided in the plan. Until they are determined there is no protection of these ecological conditions, and the plan does not provide what is needed for at-risk species. When they are determined, the plan would then have to be amended to apply the new desired conditions to all future management actions.

#### Forest Service Response

Environmental flows are the hydrologic equivalent of the biological NRV. Environmental flows are inclusive of instream flows. CFRs 219.8(a)(1) and 219.9(a) require plan components to maintain or restore the ecological integrity of aquatic ecosystems. CFR 219.9 (a)(2)(i) requires plan components to maintain or restore key characteristics associated with aquatic ecosystem types. Environmental flows are needed for ecological integrity and are a key characteristic of aquatic ecosystem types. The revised plan contains a standard (S20, pg. 123) stating when environmental flows would be determined. However, language is not present ensuring that these flows would be maintained or restored.

The diversity of water and ecological resources, as well as the potential risk of impacts to those resources makes determining environmental flows a complex issue. The method used is best determined on a case-by-case basis at the project level. There is no single method or combination of methods that is appropriate for all situations.

#### Instructions

- Add a definition of environmental flow to the glossary.
- Add the following language to S20: Maintain environmental flows and levels to ensure ecological integrity.

#### STREAMS THAT NEED RESTORATION SHOULD BE IDENTIFIED

DC-RIZ-Wando-1. "Stream(s) are evaluated for restoration during project level planning and integrated management activities form a watershed action plan."

#### Objector Proposed Remedy

While resource plans like watershed action plans may be used to implement the forest plan, the forest plan must include plan components that indicate which streams should be restored and what the restored conditions should be; we recommend that the final plan include those.

#### Forest Service Response

The issue is whether the revised plan must include plan components that indicate which streams should be restored and what those restored conditions should be. 36 CFR 219.8 (a)(2)(iv) requires plan components, including standards or guidelines, to maintain or restore water resources in the plan area, including streams. Desired conditions to maintain and restore

water resources, including streams, are in Section 2.1.4, Watershed Restoration (pp 49-50, revised plan). These desired conditions state what the restored conditions should be.

Objectives for restoring water resources are in Section 3.1.3, Watershed Restoration (pp 109-110, revised plan). Some of the standards are under Section 4.2.1.4, Standards for Riparian Management Zones (pp 123-124, revised plan). Applicable guidelines are under Section 2.1.1.4, Guidelines for Soil and Water, Aquatic Habitats and Riparian Management Zones (pg. 129, revised plan) and under Section 4.2.2.5, and Guidelines for Channeled Ephemeral Stream Zones (pg. 130, revised plan). Identifying individual streams for restoration is too site-specific for the landscape scale at which the revised plan is developed, and is much more appropriate at the project level. The requirements of 36 CFR 219.8 (a)(2)(iv) have been met, and no additional plan components are needed.

#### Instructions

N/A

#### STANDARD FOR 10% OLD GROWTH AND EXISTING OLD GROWTH

The removal of the 10% old growth objective that was in the draft plan is indefensible. It represents movement away from the intent of forest plans with more specific desired outcomes, and the remaining direction is inadequate to provide for associated at-risk species.

#### Objector Proposed Remedy

Standard 37 implements the future project-by-project planning process that is being substituted for integrated landscape-scale forest planning. The requirements for the extent and distribution of this future network should be described in the plan. This should include something like the 10% requirement.

There is no reason not to include a standard explicitly protecting existing old growth. Old growth is underrepresented, and there is no reasonable chance that it will cease to be underrepresented during the life of the plan. The “contribution” of existing old growth to ecological integrity demands that it be maintained.

#### Forest Service Response

This objector questions why OBJ-F-1(b) in the Draft Plan was removed in the Final Plan. OBJ-F-1(b) in the Draft Plan was – “Designate and manage as future old growth at least 10% of stands over 100 years old in each ecosystem within 10 years of plan approval” (Draft Plan, page 36). The second issue has to do with Standard 37 in the Final Plan. The objector states that “this standard does not say what to do with the stands that are identified” (as meeting the criteria for old growth) and that a “standard that actually protects them would need to be included.”

The remedy is to include back into the revised plan “something like the 10% requirement” (or essentially reinstating OBJ-F-1(b) from the Draft Plan) and to “include a standard explicitly protecting existing old growth”.

This issue is similar to the issue on “Old Growth Plan Components”. The discussion on “Old Growth Plan Components” provides an overview of how the revised plan provides direction for providing for old growth conditions across the Forest, and won’t be repeated here.

With respect to the remedy being proposed, the answer is that an objective for designating 10% of each ecosystem as old growth is not needed because the management direction that is in the Plan will already be providing for considerably more than 10%.

As is identified in the FEIS on page 207, the following are in lands allocated to “old growth compatible prescriptions – lands determined to be unsuitable for timber production (which includes wilderness, riparian management zones and select special and designated areas); rare communities; and pine stands within RCW 0.5-mile foraging partitions within Management Area 1.

The pine stands within the RCW 0.5-mile foraging partitions in MA 1 are counted as “future old growth”, even though they are in lands classified as “suited for timber production”. This is because once these stands have been converted to longleaf pine and have reached the age for being considered as old growth (120 years old), uneven-aged harvesting techniques will be used to maintain the desired conditions for these stands, which includes creating and maintaining desired open canopy conditions (see FEIS, Appendix B, pp. 11-14). These rotation ages are consistent with the red-cockaded woodpecker (RCW) Recovery Plan, 2<sup>nd</sup> Revision, which contains the following guidelines for management habitat for red-cockaded woodpecker on public lands (p. 198) – “If two-aged management is used, then use rotation intervals not less than 120 years for longleaf pines and 100 years for loblolly, slash, and pond pines.”

Table 3-53 of the FEIS, goes on to show that for every ecosystem group on the forest, the percentage of old growth compatible allocations is at a minimum – 18% (for the Oak Forests and Mesic Hardwood Forests ecosystem group) up to a maximum level of 78% (for the Maritime Forests and Salt Marsh ecosystem group).

The response to comments in the FEIS (FEIS Appendices, Appendix H, p. 267) further describes the reasons for removing a 10% old growth objective. It states that “The reason for this change is that the desired conditions for the ecosystems that occur in Management Area 1 are old growth compatible. Old growth reference conditions for longleaf pine ecosystems are maintained or restored within 0.5 mile foraging partitions for the endangered red-cockaded woodpecker in Management Area 1 (53 percent of the total ecosystem extent), wilderness and riparian areas and other unsuited lands, pocosins and depressional ponds and Carolina bays within Management Area 1, and rare communities.”

In reviewing the project record “20150103\_Tsched\_alt2\_tbr grps x ages 1300.xlsx”, this spreadsheet identifies that 35,359 acres are in the suited acres in Management Area 1 in the Upland Longleaf Pine Analysis Group; that 42,678 acres are in the suited acres in Management

Area 1 in the Wet Pine Savanna – Flatwoods Analysis Group; and there are a total of 52,045 acres that are forested in the lands identified as unsuitable for timber production. This results in a total of 130,082 acres (out of a total of 259,625 acres) that could eventually over time contain old growth characteristics.

Another way to show the progress of acreage providing for possible old growth characteristics, is to review Figures 3-38 and 3-39 of the FEIS (pages 229-230). These charts show that by the end of the first decade, the percentage of lands in the greater than 100 years old age class across the Forest will increase from 10% to 18%, and after 50 years, the percentage of lands in the greater than 100 years old age class will be around 33% of all the Forest acres.

With respect to existing old growth, the Old Growth Guidance requires the development of a preliminary inventory of possible old growth based on stand ages. As part of this inventory – as disclosed in the 2013 Assessment – only 795 acres of existing longleaf pine met the age criteria for old growth (110 years) and 3,668 acres of existing longleaf pine (2.5% of the ecosystem extent) was 100 years or older. As is recognized by the wording in Standard 37, existing old growth communities that are identified during project level planning contribute to the network of small and medium-sized areas of old growth. With the limited amount of potential “existing old growth” that currently exists, until additional areas can “become” old growth in the future, those lands that do currently meet the definition for old growth should be managed to maintain or enhance their existing old growth characteristics.

#### Instructions

Reword Standard 37 to reflect the intent that stands meeting the criteria for old growth (as identified during project level planning) will be managed to maintain or enhance that stand’s old growth characteristics.

### FSM 2070 POLICY SHOULD BE IN THE FOREST PLAN

Standards S13 and S36 allow use of non-native plants “when it complies with Forest Service policy,” and “when in compliance with Forest Service native plant policy (FSM2070).” If this “policy” may be changed at any time without public participation or notice, the exception swallows the rule, and this “standard” has no effect.

#### Objector Proposed Remedy

Elements of the policy necessary to meet requirements for at-risk species should be in the final plan.

#### Forest Service Response

The revised plan does reference key components of FSM 2070 that would be necessary to meet requirement for at-risk species by maintaining desired conditions of native ground cover (Appendix G, pp. 167-239). S13 and 36 require the use of genetically appropriate native plant species, but references exceptions as listed in the current FSM 2070. §219.2 (b)(2) states “Plans

should not repeat laws, regulations, or program management policies, practices, and procedures that are in the Forest Service Directive Systems”. However, the 2012 Planning Rule “does not prohibit referencing laws, regulations, or Forest Service directives if the responsible official feels that doing so will add clarity” (77 FR 21192). The standards S13 and S36 that reference existing Forest Service directives add clarity due to the importance of using native species in restoration and revegetation for improving and maintaining ecological sustainability and at-risk species.

#### Instructions

N/A

### AT-RISK SPECIES

The FEIS fails to provide an adequate analysis of the effects of the alternatives on at-risk species. It is therefore not possible to determine whether plan components provide ecological conditions necessary to contribute to recovery or maintain viability of at-risk species (36 CFR 219.9(b)). The FEIS suggests that plan components may not provide the ecological conditions necessary for viable populations of some species.

### AQUATIC ECOSYSTEM DESIRED CONDITIONS, STANDARDS AND GUIDELINES

The riparian management zone widths in S-22 do not comply with the Planning Rule (36 CFR 219.8(a)(3)(ii)). It is written as a guideline (“should”) and it does not apply to areas around lakes and open water wetlands. Riparian management zones are also not included in the desired conditions for open water wetlands in DC-ECO-08 or 09.

While the FEIS starts off by discussing the degree of “watershed improvement,” the analysis appropriately estimates the impacts of management activities on sediment. It concludes that sediment increases would be less than 5%, and that, “Therefore, the increased sediment in streams should not inhibit the movement of aquatic organisms and impair aquatic habitat” (p. 97). This conclusion is not substantiated by best available science for ecological conditions needed by at-risk species.

The EIS implies that compliance with Forest Service national best management practices for water quality is mandatory (p. 90), and concludes that, “Given the effectiveness of these best management practices programs, none of the three alternatives should have long-term direct and indirect impacts to rivers and streams.” There is no standard in the forest plan to require this compliance.

The plan is unclear on when woody debris will be removed from streams. S14, S21 and G28 all say somewhat different things.

A response to comments (Seq#66) regarding water table conditions relies in part on an assumption that recovery of beaver within some areas may also promote local water table increases. However, there is nothing in the plan suggesting that recovery of beaver is a desired

condition. In addition, the draft ROD states, “The revised plan provides direction that will protect wetlands by ensuring that new construction of roads and other facilities will not have an adverse effect on sensitive aquatic habitat or wetland functions. In addition, wetland evaluations will be required before land exchanges occur or special-use permits are issued in areas where conflicts with wetland ecosystems could occur” (p. 30). There are no standards or guidelines limiting these activities in wetlands.

#### Objector Proposed Remedy

The standard needs to be redrafted.

Estimates appear to be available by sub-watershed and attention for ecological conditions should be focused on those sub watersheds most important to at-risk species.

The Planning Rule requires that, “Plan components must ensure implementation of these practices” (36 CFR 219.8(a)(4)). That requires a standard to incorporate them. They are mentioned in desired conditions and guidelines, and S19 requires use of state BMPs, but the plan does not include the standard needed to comply with this requirement of the planning rule.

We think a standard should be based on desired conditions for the stream, but they do not exist (see discussion of aquatic ecosystems in Issue 3).

However, there is nothing in the plan suggesting that recovery of beaver is a desired condition. This should be included.

There are no standards or guidelines limiting these activities in wetlands. There should be.

#### Forest Service Response

S22 states, in part, that “Riparian management zones (RMZs) ... should be 50 feet on each side of intermittent streams and 100 feet on each side of perennial streams” (pg. 123, revised plan). The language used in this portion of S22 is appropriate to a guideline instead of a standard. 36 CFR 219. 8(a)(3)(ii) states, in part, that “Plans must establish width(s) for riparian management zones around all lakes, perennial and intermittent streams, and open water wetlands”. The wording of S22 includes perennial and intermittent streams, but currently omits established widths around lakes and open water wetlands. In order to comply with 36 CFR 219. 8(a)(3)(ii), widths for RMZs around lakes and open water wetlands need to be established. The revised plan establishes widths around open water wetlands, but omits widths for lakes, when the statement is made that RMZs “are defined as the area within 100 feet of perennial streams or open water wetlands, or within 50 feet of intermittent streams” (pg. 37, revised plan).

DC-ECO-8 includes desired conditions for open water wetlands. Under DC-ECO-8, the statement is made that “These areas include embedded riparian areas and riparian management zones” (pg. 33, revised plan). DC-ECO-9 contains no language referencing RMZs. However, when open water wetlands are added to the language in S22, then this would cover any open water wetlands and associated RMZs in DC-ECO-9.

The FEIS states that “At the planning level, estimates of sediment are meant for comparison purposes only” (pg. 97, FEIS). The estimates are not meant to be used as actual sediment values. The No Action alternative shows a sediment increase of 4.6% over background levels per decade, and the Proposed Action alternative shows a sediment increase of 4.9% over background levels per decade (Table 3-7, pg. 98, FEIS). Comparing the two alternatives, the difference between them is 0.3% per decade. It appears that there is no direct rationale provided that supports the statement concerning sediment increases of less than 5%. There is no need, however, for the rationale to focus on at-risk species.

Estimates of sediment yield are available for all subwatersheds, including those that contain at-risk species. By including all subwatersheds, the full scope of effects from all management activities is included in the sediment analysis. There is no need to limit the sediment analysis by focusing it solely on watersheds with at-risk species.

The FEIS recognizes the requirement that all national forests have been instructed to “follow the National Best Management Practices, including monitoring for compliance” (p. 91). S19 is about BMPs for water quality and therefore cites the State requirements. Overall BMPs for soil and water, aquatic habitats, and riparian management zones are covered in G19. The purpose of the guideline must be met; therefore, a separate standard mandating that national BMPs will be followed is redundant.

S14 speaks specifically to wood that was added to streams during harvest activities. S21 is a general standard about large woody debris (presumably not added by harvest activities); however, it is unclear if this standard is referring to instream wood or also includes large woody debris in the riparian management zone. G28 is about large woody debris in the RMZ as it relates to wildlife habitat. S21 and G28 both limit removing large woody debris; however, it is unclear why one is a standard and one is a guideline, and how they relate to each other.

Desired conditions for large woody debris in streams are found in DC-ECO-10. It is specifically stated that “Instream large wood (>10 cm diameter and > 1 m length) is distributed throughout riparian management zones. Instream wood is large enough to create stable habitat diversity and drought resistance” (pg. 37, revised plan). Two standards already exist concerning large woody debris, therefore an additional standard is not necessary. .

DC-ECO-4 (pg. 27, revised plan) mentions “soils that are semi-permanently or permanently saturated from processes such as ... beaver activity” and DC-ECO-10 (pg. 36, revised plan) mentions habitat for beavers, therefore adding a desired condition of beaver recovery is not needed.

There are numerous desired conditions as well as objectives (OBJ-ECO-4, 5, OBJ-T&E-1, OBJ-SCC-1, 2, OBJ-WAT-2, OBJ-COM-4), standards (S20, S22, S39) and guidelines (G8, G16, G19, G25)

that speak to the protection, maintenance, and/or restoration of wetlands. No additional standards or guidelines are necessary.

### Instructions

- Reword S22 to consistently use language appropriate to a Standard. Add lakes and open water wetlands as features to which a fixed-width RMZ would apply in S22.
- Add definition of “open water wetlands” to Definitions (Appendix G) and change language so that fixed RMZ widths apply to intermittent and perennial waterbodies (not just to intermittent and perennial streams).
- Provide rationale that supports the statement that “increased sediment [ $<5\%$ ] in streams should not inhibit the movement of aquatic organisms and impair aquatic habitat” (pg. 97, FEIS).
- Clarify the plan components regarding large woody debris in riparian management zones and streams and ensure they are consistent.

## ECOLOGICAL CONDITIONS FOR FROSTED FLATWOODS SALAMANDER

The desired condition is to, “Maintain and restore ecological conditions for the federally threatened frosted flatwoods salamander within designated critical habitat on the forest...” (DC-T&E-1). It is not specific about what those “ecological conditions” are, and acknowledges that part of the desired condition is, “Information is obtained to ensure successful reproduction and recruitment of the frosted flatwoods salamander.” There is no specific desired condition.

Since this desired condition is applied only to a specified area, the critical habitat meets the definition of “management area.” This “management area” is not adequately addressed in the revised plan and is not identified as unsuitable for timber production.

The BA notes that, “Some of the best examples of frosted Flatwoods salamander breeding wetlands on the Francis Marion are bordered by a former tram bed” (p. 200). However, there is no mention in the revised plan of the need to remove or mitigate this source of ongoing adverse impacts on this listed species and on ecological integrity.

The BA lists several standards and guidelines that would minimize effects on the salamanders. They all apply to different areas.

The BA also states that, “Any management activities that could affect potential breeding ponds or adjacent upland habitat would be conducted in accordance with USFWS guidance for conservation of this species” (p. 204). It is not clear what this is referring to.

The BA concludes this about the likely adverse effects: “It is not possible to quantify the potential effects, but the Forest Service is actively participating in recovery planning with USFWS and will attempt to minimize the possibility of harming individuals of this species during implementation of the proposed plan” (p. 205, emphasis added).



### Objector Proposed Remedies

We recommend the development of specific desired conditions.

We recommend that it be treated as such in the revised plan, including identification as not suited for timber production. “Typical forest management and restoration activities,” as described in the BA, should not occur here.

This issue should be addressed.

We recommend that they all specifically refer to designated critical habitat, which has been mapped. If zones around known breeding ponds are also to be used to apply plan components, these ponds must either be mapped in the plan and/or a pre-project survey must be required.

If it is referring to existing guidance, that must be incorporated into the revised plan so that the plan meets the requirement to contribute to recovery of listed species. Any future guidance that would apply to all projects would also need to be incorporated into the plan, but that should not be considered relevant to consultation on this proposed action.

The required conclusion for NFMA is that the forest plan must contribute to recovery; this needs to be reexamined. Plan components must be developed that discuss actions that would be taken to promote recovery.

### Forest Service Response

Objectors suggest the revised plan should include a DC for Flatwoods Salamander within designated Critical Habitat, that the salamander’s critical habitat be its own Management Area and that the Area not be suitable for timber production.

The 2012 Planning Rule does not require a specific desired condition (DC) for Critical Habitat. § 219.9 (a) Diversity of plant and animal communities the plan must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore their structure, function, composition, and connectivity. This also applies to T&E species (§ 219.9 (b)). The revised plan meets these requirements via other DCs. Desired conditions for this species’ habitat is described in detail in DC\_ECO-2, 3, and 4. Additional desired conditions are described in DC-SCC-1 and 2, DC-T&E-1 and Appendix B: Timber Analysis. However, a Flatwoods Salamander DC is a reasonable request.

The Flatwoods Salamander Critical Habitat meets the definition of a Management Area, as per §219.19 Definitions. Management area. A land area identified within the planning area that has the same set of applicable plan components. A management area does not have to be spatially contiguous. The 2012 Planning Rule does not require that all areas fitting this description become actual Management Areas.

The revised plan concerning Flatwoods Salamanders is in compliance with the 2012 Planning Rule and NFMA. § 219.11 Timber requirements based on the NFMA. § 219.11 (a) Lands not suited for timber production (1) (iii) Timber production would not be compatible with the achievement of desired conditions and objectives established by the plan for those lands. Appendix B (p. 157) describes that “periodic timber harvest” can maintain habitat conditions, then states that timber production is compatible with Flatwoods Salamander’s Desired Condition - “In frosted flatwoods salamander designated critical habitat, the desired condition is fire maintained, open canopy longleaf pine habitat. Trees grow through the years, their crowns expand, and younger trees come into the forest. Gradually the density of trees exceeds the desired open canopy condition. Periodic timber harvest helps reduce this density to maintain an open canopy and provide enough light for an herbaceous understory and for young longleaf pine to eventually replace the older trees in the forest. For these reasons timber production is compatible with this desired condition.”

Objectors were also concerned that the revised plan does not specify the removal or mitigation of the effects of the tram bed on Flatwoods Salamander habitat. Removal or mitigation of the effects of the tram bed on Flatwoods Salamander habitat will be addressed at the project-level, but may require consultation with the USFWS. Once the final recovery plan has been completed the DC may or may not have changed. The recovery plan may not suggest the Francis Marion install arched culverts, but recommend removing some of the tram bed to restore hydrology. The suggested remedy is too prescriptive for the programmatic revised plan.

Objectors suggest that standards and guidelines would minimize effects on the salamanders and should specifically refer to designated critical habitat. This is not feasible because two of the standards and guides referenced in BA (page 204 of FEIS) are specific to flatwoods salamander critical habitat or habitat of Carolina gopher frog. The other 2 are forest-wide standards and should not be applied only to designated critical habitat.

Objectors also contend that any management activities that could affect Flatwoods Salamander must be incorporated into the revised plan so that the plan meets the requirement to contribute to recovery of listed species. § 219.9 (a) Diversity of plant and animal communities the plan must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore their structure, function, composition, and connectivity. This also applies to T&E species (§ 219.9 (b)). The revised plan meets these requirements via DC, 3.1.2 Species Diversity, OBJ-T&E-1. Frosted Flatwoods Salamander, S30 and G33 DC\_ECO-2, 3, and 4, and DC-SCC-1 and 2, DC-T&E-1 and Appendix B: Timber Analysis.

Under the 2012 Planning Rule - § 219.9 (a) Diversity of plant and animal communities the plan must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore their structure, function, composition, and connectivity. This also applies to T&E species (§ 219.9 (b)). The revised plan provides components to recover the species by restoring and maintaining habitat critical for the recovery of the species long-term. This is why formal consultation was initiated with the USFWS. The

revised plan promotes the recovery of Flatwoods Salamander through DC 3.1.2 Species Diversity; OBJ-T&E-1. Frosted Flatwoods Salamander; S30; G33 DC\_ECO-2, 3, and 4; DC-SCC-1 and 2; DC-T&E-1 and Appendix B: Timber Analysis.

### Instructions

- Add the following language to DC-T&E-1: Frosted Flatwoods Salamander - Maintain and restore ecological conditions as described in DC-ECO-2 through 4 for the federally threatened frosted flatwoods salamander within 1,175 acres of designated critical habitat on the forest (See Figure 2-17 below). Within the Wando Resource Integration Zone, project development is based on implementing guidelines in the most recent Recovery Plan (TBD) Within this zone seasonally flooded isolated wetlands provide high quality breeding habitat, while surrounding fire-maintained longleaf-pine dominated woodlands and savannas provide migration routes between breeding habitats. Restore continuous native herbaceous ground-cover and soil and hydrologic characteristics which support the natural function and connectivity of these groundwater-dependent ecosystems. Information is obtained through the forest-wide monitoring program used to establish baselines for habitat trends and conditions (MQ 6-7), measure the quality of salamander habitat, and will assess the stability of populations (MQ 14) to ensure successful reproduction and recruitment of the frosted flatwoods salamander.
- Add the following language to OBJ-T&E-1. Management Strategies: It is anticipated that the US Fish and Wildlife Service (FWS) will release a recovery plan for frosted flatwoods salamander. **When a recovery plan is released the Francis Marion will evaluate the need to add or modify plan components to meet recovery goals** and coordinate with partners to expand the population.
- Add Guideline to address the appropriate seasons for prescribed fire in Frosted Flatwoods Salamander Critical Habitat.
- Add a guideline for minimizing ground-disturbing activities during vegetation management within the Frosted Flatwoods Salamander Critical Habitat.

### EFFECTS ANALYSIS AND AT-RISK SPECIES.

The FEIS fails to provide an adequate analysis of the effects of the alternatives on at-risk species. It is therefore not possible to determine whether plan components provide ecological conditions necessary to contribute to recovery or maintain viability of at-risk species (as appropriate). The FEIS suggests that plan components may not provide the ecological conditions necessary for viable populations of some species.

### Objector Proposed Remedy

We expect to see a thorough discussion of what ecological conditions are necessary for each at-risk species, and an objective determination of effects of plan alternatives in terms of how well they provide these conditions.

#### Forest Service Response

The issue regarding the ecological conditions necessary for each at-risk species is discussed in the issue "At-Risk Species Plan Components"; the conclusion is that the analysis of the ecological conditions necessary for each at-risk species was adequately addressed and documented in the revised plan.

The issue here is whether the project record provides an objective determination of effects of plan alternatives in providing these conditions. The effects of the plan on federally-listed species are analyzed by alternative in the Biological Assessment (Appendix G of the FEIS; pp. 167-238). The Biological Assessment summarizes the desired conditions described in the forest plan, along with the objectives, management strategies, standards and guidelines that apply to the at-risk species on the forest; the effects are detailed in Section 5 (pp. 92 - 223). The effects of the plan on Regional Forester's Sensitive Species are analyzed by alternative in the Biological Evaluation (also Appendix G of the FEIS, pp. 226 – 235), leading to the following determination:

May impact Individuals but not likely to cause a trend to federal listing or a loss of viability: All sensitive species addressed. Restoration activities could result in the loss of individuals, but are not likely to affect and may benefit populations and habitat, based on revised Forest Plan desired conditions which benefit habitats, standards and guidelines, and management strategies for populations of at-risk species, and because of information which suggests that the species does not occur on the forest, and that habitats and populations are stable. In addition, an all-lands approach will be used to improve collaboration with partners in the sharing of information regarding species distributions, ecosystems, habitats, and management responses.

The effects of the revised plan on the habitat needs and dynamics of SCC species are addressed by the Ecological Sustainability analysis in Appendix E of the FEIS (pp. 87 – 152). The analysis describes the ecosystems and at-risk species, sorts the species into groups associated with specific desired conditions, defines key characteristics and indicators for each condition, and then extensively assesses conditions classifications for the ecosystems, calculating sustainability indices for each alternative (e. g. Table E-45, pg. 147).

The forest has adequately determined the effects of plan alternatives in providing conditions for at-risk species.

#### Instructions

N/A

## AT RISK SPECIES, EFFECTS ANALYSIS AND LISTED PLANTS.

### Objector Proposed Remedy

There should be other plan components that make this likely to happen, such as a standard prohibiting certain roadside treatments, or required surveys. The FEIS refers to plan components that are “protection measures aligned with the species’ recovery plan” (p. 147). It should make clear what those are.

The BA indicates that adverse effects on pondberry could result from “timber harvest at pond ecotones” (p. 205). Why is timber harvest necessary in pond ecotones? This should be justified for ecological reasons and it needs to be clear that the standards listed as mitigating measures apply to pond ecotones; none of them currently mention this. These areas should not be considered suitable for timber management.

These need to be included as plan components.

This cannot be assumed unless there is a standard that requires it.

Shrub reduction is not included in the objective for pondberry and therefore should be added.

There needs to be an accounting of these differences and their effects.

### Forest Service Response

The revised plan describes ecological conditions for federally listed plant species and incorporates recovery plans to continue management for these species. In the revised plan, Appendix D (Table D-4) shows the crosswalk to plan components that will provide direction for sustainable populations of American chaffseed (p. 182) and pondberry (p. 179 – should be DC-SCC-6 not DC-SCC-8). The revised plan lists specific standards and guidelines for at-risk species and ecological sustainability on pp. 124-125 and p. 131.

G35 (p. 131) states that the guideline and recovery objectives in the current recovery plan for American chaffseed should be considered. (See additional comments 20161027\_RCW\_DeferringPCsProject). DC-T&E-3 American chaffseed is maintained along roadsides in coordination with South Carolina Department of Transportation. The FEIS (p. 147) recognized that threatened and endangered species would be addressed and conserved through site-specific analysis and align with the species’ recovery plan. Forest Service NEPA procedures must be followed for proposing site-specific projects developed under the revised plan (77 CFR 21192).

The objector commented that the pondberry recovery plan emphasizes that, “first priority be given to management and enhancement of populations at known and historic sites for the species, where possible.” The revised plan addresses the need to maintain and restore stable to increasing populations of pondberry (OBJ-T&E-3, p. 108) in known existing and historic locations (DC-T&E-4, p. 43). OBJ-SCC-3 (p. 108) prioritize habitat restoration for declining

species. Federally-listed species are given highest priority. Monitoring will assess population status and trends and the relationship to habitat/ecological conditions every 2 years for federally-listed plant species (MQ 13, p. 143) to develop adaptive management strategies (OBJ-SCC-3, p. 109).

The BA adequately analyzes the impact for timber harvest or vegetation management at pond ecotones. The revised plan identifies standard and guidelines (S26, S30, S34-35, S39-40, G8-9, G35, G40-41; p. 124-125, 128, 131) for management in T & E plant habitat while recognizing the need for timber harvest to achieve desired ecological conditions and objectives. Although the FEIS could have provided clearer documentation and rationale, the forest has addressed this issue.

OBJ-T&E-3 (p. 108) and OBJ-SCC-3 (pp. 108-109) lists management strategies that will be used to maintain and restore listed species and their associated habitats. The effect analysis in the BA does reference those management strategies. However, the determination of “may affect, and are likely to adversely affect individual for American chaffseed” (Appendix G: p. 194) is based on active management required to maintain high-quality habitat conditions. “This determination is a result, primarily, of management activities within Management Area 1 which maintain and restore associated upland longleaf woodland ecosystems and habitats with open mid-story, shrub, and tree canopies and desired 1-3 year fire regimes, including a growing season burn every third burn, where activities could include mastication, selective herbicide application, timber harvest, and fireline and road reconstruction.” The rationale in the determination demonstrated that primary weight was given to plan components and impacts for implementing the revised Forest Plan, not additional management actions. Similar rationale is found for Canby’s dropwort (Appendix G: p. 200) and pondberry (Appendix G: p. 207)

In the effects analysis in the FEIS and BA for TE plants, each analysis says that attempts will be made to survey and flag individuals prior to the onset of activities (FEIS, p. 147, Appendix G, p. 194, 198-199. The management strategy for at-risk species (OBJ-SCC-3, p. 109) includes collecting inventory and monitoring information. The effect analysis in the BA concluded that individuals may be impacted even with attempts to survey and flag individuals for American chaffseed and Canby’s dropwort. Objector is correct in that there is no standard requiring that plants be surveyed and flagged prior to activities.

DC-ECO-4 (pp. 27-28) and DC-T&E-4 (p. 43) describes the desired ecological conditions for habitats that would support pondberry with open canopy and abundant herbaceous groundcover. High shrub cover is listed as a threat to pondberry (FEIS, p. 151), but not specifically addressed in the OBJ-T&E-3 or associated management strategy.

The Forest Plan (p. 125) and BA (Appendix G: pp. 190, 194, 199, 207) initially differed in the additional specific measures to reduce impacts to federally listed plant species. On Aug. 23, 2016, an email was sent to USFWS informing them of the correction to S41 in the BA. The

effects analysis in the FEIS (p. 139 - 153) analyzes the effects from the standards listed in the Forest Plan, not the BA. The Forest has already addressed this issue.

### Instructions

- Add an appropriate plan component (standard or guideline) to address the need to identify and mark individuals or occupied habitat in locations of federally-listed plant species prior to the onset of ground disturbing activities where the activity may have negative impacts, so that the plants or habitat can be avoided.
- Expand the management strategy in OBJ-T&E-3 to include the need for management activities to reduce woody shrubs in habitat occupied by pondberry to improve habitat.

## AT RISK SPECIES AND PLAN COMPONENTS

### Objector Proposed Remedy

We expect documentation of how ecosystem plan components meet the needs of at-risk species. Where they do not, we expect to see species-specific plan components that address necessary ecological conditions not provided with sufficient certainty by the ecosystem plan components (36 CFR 219.9(b), 1909.12 FSH 23.13). For ecosystem plan components, we expect to see a projection of the relevant future ecosystem conditions for each alternative. Where species-specific plan components are needed, it may be sufficient to demonstrate that remaining relevant threats have been managed.

In addition, we hoped to find a statement for each at-risk species that explains what ecological conditions it needs, whether (and if possible how much of) those conditions would occur in the plan area and a rationale that is based on plan components and their effects. Instead we found unsubstantiated reliance on a coarse filter strategy that addressed species almost entirely by addressing ecosystems. We also found that, from the information that was available to us, we could not fully understand the assumptions inherent in this approach or how they affected the conclusions about species viability. We recommend that these flaws be remedied prior to the finalization of the plan.

There is no documentation of the “habitat needs” for species or how the plan components meet them. The documentation cited to address this question is Appendix D of the forest plan. Table D-3 groups species as ecosystem “associates.” A rationale must be provided for these associations.

Provide a document that demonstrates or explains how ecosystem plan components provide ecological conditions needed by at-risk species.

The scientific literature notes that the coarse filter approach is unlikely to provide a reliable basis for multi-species conservation efforts, and there must be a demonstrated correlation between the ecosystem attributes included in the coarse filter and those necessary for the viability of individual species. The Forest needs to provide evidence of this.

### Forest Service Response

The issue is how ecosystem plan components meet the needs of at-risk species, and where this is documented in the project record. The component needs for at-risk species are identified in Table D-4 of the revised plan (Appendix D, pp. 171-184). As an example; for the at-risk species Frosted Flatwoods Salamander, the revised plan lists six different desired conditions that address the full range of its habitat needs. These desired conditions are linked to management objectives designed to produce the desired conditions, which, in turn, should meet the habitat needs of the at-risk species. The desired conditions for habitats are described earlier in the revised plan, beginning in Section 2.1.1 (pg. 20), which describes the habitats, and continuing in Section 2.1.3 (pg. 41), which describes the needs of the at-risk species. For example, the desired conditions for DC-ECO-4 Depressional Wetlands and Carolina Bays, one of the habitats for the Frosted Flatwoods Salamander, describes the optimal conditions of the habitat in four categories: composition, structure, ecological processes, and landscape structure and connectivity:

**Composition.** A variety of vegetation types are present, depending on the size, depth and frequency of fire, but highest quality examples have an intact native herbaceous groundcover, both within ponds and in the adjacent upland ecotone. Vegetation composition often varies from year to year in response to differences in water levels and drawdown times. Seed banking plays an important role in component communities. The ecotone of these depressions is intact and predominantly herbaceous. Carolina bays have a sand rim often dominated by xeric upland longleaf pine. Wetland-associated species such as panic grasses, rushes, spikerushes, beak-rushes, meadow beauties and marsh-pinks are present and dominate the herbaceous layer. Incidents of non-native invasive species within these ecosystems are low.

**Structure.** Vegetation includes a series of primarily herbaceous and woodland associations, sometimes strongly zoned. The center or wettest area of these wetlands typically has open water and floating-leaved aquatic vegetation or marsh vegetation of tall grasses.

*Canopy:* Some trees or shrubs tolerant of standing water, especially baldcypress, pond cypress or tupelo, may grow in the basins, either as scattered individuals, or as a forested canopy over the whole basin. Drier, fire-maintained sites often have an open canopy of pond cypress, with a dense, often fairly species-rich herbaceous layer beneath.

*Midstory:* few occurrences are shrubby, but none contain the dense shrub layers of characteristic pocosin species that occur in the bays with organic soils.

*Groundcover:* The understory consists of herbaceous groundcover, including a wide variety of wildflowers, sedges, grasses and legumes.

**Ecological Processes.** Flooding and persistent saturation is dominant. Frequent, low-intensity fire is maintained at 3 year average fire return intervals. Hydrologic function remains intact; therefore, a diversity of native species, especially vascular plants and amphibians, are found here. During drought, woody species may invade into the depressional ponds and Carolina bays, altering hydrology and groundcover dynamics.



**Lands cape Structure and Connectivity.** Depressional wetlands and Carolina bays are maintained and restored wherever they occur, which is on 3.4 percent of the Francis Marion’s forested acres. Where they occur within a fire-maintained landscape (73 percent of which occurs in Management Area 1) frequent, low-intensity fire is used to prevent encroachment from trees and encourage herbaceous ecotones and ground-cover, important to at-risk amphibians and vascular plants. Wetlands are connected to adjacent habitats, including the continuity of herbaceous understory and intact hydrology, to provide habitat for a number of plant and animal species.

Additional, species-specific habitat needs, not addressed at the habitat level, are described for individual species in Section 2.1.3. For example, the habitat needs for Frosted Flatwoods Salamander are described in Section 2.1.3, under DC-T&E-1:

Within this zone seasonally flooded isolated wetlands provide high quality breeding habitat, while surrounding fire-maintained longleaf-pine dominated woodlands and savannas provide migration routes. Restore continuous native herbaceous ground-cover and soil and hydrologic characteristics which support the natural function of these groundwater-dependent ecosystems. Information is obtained to ensure successful reproduction and recruitment of the frosted flatwoods salamander. [pg. 42]

The forest has provided sufficient description of habitat needs for at-risk species. These descriptions have been adequately documented in the revised plan and effectively associated with at-risk species using coarse-filter habitat analysis.

#### Instructions

N/A

#### REDUCE FERAL HOGS SHOULD BE A DESIRED CONDITIONS

The draft ROD decries the “degradation of ecosystems caused by feral hogs” (p. 12) but the revised plan takes no responsibility for addressing wild hogs through plan components, and appears to suggest that this issue is somehow independent of the forest planning process. It states that future actions do not depend on the alternative selected (p. 223), but that is only a valid approach to meeting the species viability requirement if all alternatives include appropriate plan components. DC-THR-1 only mentions coordinated prevention and education efforts (and seems to be focusing on invasive plants). Simply permitting control of feral hogs (absence of plan components) does not meet the requirement that plan components provide ecological conditions for at-risk species.

#### Objector Proposed Remedy

There should be an actual desired condition of elimination of feral hogs.

#### Forest Service Response

The FEIS recognizes the damage from feral hogs, has a desired condition that includes reducing their impact and commits to taking action if a control method is feasible. However, there is not a specific commitment to help develop or participate in the coordinated strategy discussed in the draft ROD.

#### Instructions

Address the intent of the Forest to reduce feral hog populations on NFS and to limit their detrimental effects on ecosystems by strengthening commitment to the coordinated strategy referenced in the draft ROD. Specifically, change DC-THR-1, Non-Native Invasive Species Management, page 52 to the following:

*Non-native invasive species are reduced on the landscape. Populations of non-native invasive species, such as feral hogs, are reduced through partnerships with appropriate state, local and private organizations. Through collaboration with partners on education, timely treatment and control, equipment cleaning and early detection and rapid response, the spread and introduction of non-native invasive species is minimized. Proactive management activities and monitoring reduce the number of non-native species and improve the integrity of ecosystems and forest health. Guidance from the regional noxious and invasive strategy is incorporated into project planning and implementation.*

*In partnership with the U.S. Department of Agriculture Animal and Plant Health Inspection Service, Clemson University Department of Plant Industry, South Carolina Cogongrass and Wild Hog Task Forces, the South Carolina Department of Natural Resources Aquatic Nuisance Species Program, and the South Carolina Exotic Pest Plant Council, the forest will reduce resource damage due to non-native invasive species through a combination of education, research, and management, not only on national forest lands but with cooperating landowners. Educational materials are provided to the publics which encourage the use of weed-free feed for horses, boat cleaning at landings, and the use of local firewood (cut within 50 miles of where it will be burned). The Forest Service works with state and industry partners on the development of weed-free certifications for soil, gravel, mulch and feed to reduce the introduction of non-native invasive species on national forest lands.*

#### OTHER SPECIES, DESIRED CONDITIONS.

DC-SCC-1 for stump and root mound associates is ambiguous regarding when there would be a need to create underground refugia.

Objectors also believe that DC-SCC-1 should provide for safe passage for wildlife species sensitive to road use.

Table 2-6 (and tables in the plan for other areas) is confusing because it seems to be a mixture of facts, management area classifications with desired conditions, and it is important to know which is which. One questionable entry is a large number of acres where the desired condition is a departure from a fire regime condition class.

### Objector Proposed Remedy

There should be a guideline that addresses this.

Recommend a strategy embodied in plan components that indicates priority areas based on the best available scientific information, such as was done for Morgan Creek Seepage Bog in the Pine Upland/Wetland Ecotones desired condition, or the rare plant communities mapped in Appendix E. This would not be appropriate and should be reexamined.

### Forest Service Response

The direction for wildlife stump and root mound associates in the revised plan is given in DC-SCC-1 (page 45). The desired condition is unambiguous for stump, hole and mound density, the caution regarding artificial construction of these resources is for situations where those densities fail to meet the desired conditions.

The direction for wildlife species sensitive to road use associates is addressed in DC-SCC-2 (pg. 45).

Table 2-6 on page 68 provides the necessary information to meet planning requirements. It lists the resource area under consideration as basic plan objectives – e. g., ‘Restoration,’ or ‘Wood Products’; second, the actions connected with the resource areas – e. g., ‘timber sale’ as an action designed to generate wood products; and third, the measurable objectives to meet the desired conditions – e. g., 3% harvest on 6000 acres should produce the desired amount of wood products from the management area.

### Instructions

N/A

## SCC AND PLAN COMPONENTS

The response to comments on the DEIS stated, “Further clarification of how the plan components for SCC species are developed - and the process for evaluating effects to SCC – will be incorporated into Appendix D.” Objectors state that no such discussion was in Appendix D.

### Objector Proposed Remedy

Further discussion clarifying how the plan components for SCC was developed must be provided.

### Forest Service Response

The response referenced by the objector says "**Response: [Seq#88]** you suggest that further clarification is needed both in plan components for SCC (such as those addressed in Table 2-2), and addressing effects to SCC in the effects analysis. Further clarification of how the plan

components for SCC species are developed - and the process for evaluating effects to SCC – will be incorporated into Appendix D of the revised plan and Chapter 3 and Appendix E of the FEIS.

Appendix D in the revised plan contains a crosswalk of at-risk species and Forest Plan components as well as individual species rankings, not provided in Appendix D in the revised plan.

In Appendix E of the FEIS (pp. 87 to 152), the Forest outlines a well-defined, six step process for developing plan components for SCC: the forest identified and defined ecosystems, identified species, identified and defined key characteristics of ecosystem sustainability, linked species to the ecosystems and watersheds and identified any additional needs of species, developed forest plan components, and evaluate Ecological Sustainability Ratings to assess future outcomes. The products of these analyses are detailed in a series of 42 tables, beginning with Table E-3 “Crosswalk of Forest Plan Ecosystem, NatureServe Ecological Systems, and mapped ecosystems used in analyses” (pg. 93), and continuing through Table E-45 “Overall ecological sustainability ratings” (pg. 147). The analysis in Appendix E is incorporated into Section 3.3.1 of the FEIS which describes the desired conditions of the ecosystems found on the forest, (pp. 100-138) and Section 3.3.3 (pp. 169 – 203), which described the conditions for at-risk species, including species of conservation concern. For example, the FEIS describes the desired condition for forested wetlands as follows: “Flooding is the most important ecological factor influencing associated ecosystems, though fire can vary from a minor to a significant influence on vegetation composition and structure. The original vegetation was likely a true shifting mosaic, where prescribed burning influenced peat build-up, hydrology, and vegetation (Simon and Hayden 2014) (FEIS, pg. 174).” Later, in Section 3.3.3, the forest discloses direct, indirect and cumulative effects for each SCC by habitat group.

#### Instructions

N/A

#### ROAD DENSITY DESIRED CONDITION TO PROTECT AT-RISK SPECIES

The FEIS cites the OBJ-MUB-6 as a basis for projecting reduced road density that benefits wildlife (p. 106, emphasis added). This objective does include the following among the criteria:

2. Reducing road use in *areas of at-risk species that are sensitive to road use.*
3. Improving connectivity of ecosystems *where roads are significantly altering current ecosystem function or reducing impacts to resources.*

But the revised plan does not identify where these italicized areas are, or provide criteria for identifying them. There is also no desired condition for road density that would protect these species.

OBJ-REC-2 would reduce road density in semi-primitive non-motorized management areas, and road density is mentioned in DC-RIZ-Wambaw-2 as “lower than the surrounding forest.” This approach is not focused enough given the importance of road density as a wildlife stressor.

*Objector Proposed Remedy*

The plan must identify where these italicized areas are, or provide criteria for identifying them, and there should be a desired condition for road density that would protect these species.

This is an important enough stressor to wildlife to warrant a more focused approach. Otherwise these environmental benefits seem exaggerated. In fact, they actually conflict with this conclusion: “The majority of indicators are ranked good and very good, with the exception of unpaved open road densities, which were ranked poor, and anticipated to remain poor, within upland pine woodland ecosystems, since the existing road network may be needed for restoration and access” (p. 107).

*Forest Service Response*

A focused approach is provided in the revised plan and FEIS for roads and at risk species sensitive to road use. Wildlife Species Sensitive to Road Use Associates (DC-SCC-2 Wildlife Species Sensitive to Road Use Associates) are found in the Plan, Appendix D, and p 170. Species, desired conditions and objectives are cross walked in the revised plan, p 171, *Table D-4 Crosswalk of at-risk species and forest plan components* and include the spotted turtle. Roads are used as indicators for at risk species, both in the Assessment and as Monitoring Indicators; e.g. MQ 38 - Roads and Trails: a. Open Road Density, b. Road Maintenance, c. Proximity to Water, d. Mass Wasting. The 2012 Planning Rule (36 CFR 219.15(d)) states that projects and activities must be consistent with all applicable plan components (desired conditions, objectives, suitability of lands, as well as standards and guidelines).

Requests for road specific desired conditions have previously been addressed (FEIS Appendix H) in Response to Comments, “the revised forest plan does emphasize the negative impact roads have on wildlife species and especially the amphibian and reptile species. This is reflected in the desired condition DC-SCC-2. Wildlife Species Sensitive to Road Use Associates. The areas that support at-risk species that are sensitive to disturbance from road use are maintained without open roads and with a low level of recreational use, including off-highway vehicles (OHVs) and horses. Also, some roads are closed to provide habitat conditions for threatened or endangered species, or species of conservation concern.” OBJ-MUB-6. Comprehensive Roads Planning and Maintenance provides direction to “develop an action plan for management of the road system on the Francis Marion following guidance in FSM 7703 on transportation” and specific priorities within 3 years. Plan, Appendix E: Maps, p 186, Figure E-1. Ecosystems (except rivers and streams) by management area. This action plan includes priorities for road closures that address the objectors concerns.

*Instructions*

N/A

## STEP 1: IDENTIFY AND DEFINE ECOSYSTEMS.

The NatureServe ecosystem framework served as a basis for the mapping of potential natural vegetation types (PNVTs). Twenty-one ecological systems were identified and grouped into nine “ecosystem groups.” This grouping is displayed in Table E-3, p. 93. Aquatic ecosystems are sub-watersheds. The FEIS states that these ecosystems were used for “evaluating forest plan effects on ecosystem and species diversity and for interpretation of the natural range of variability” (p. 100). It also refers to unspecified “associated documents in the process record” for more information.

The rationale for the ecosystem groupings is not displayed so it is possible that one ecosystem type in a group might not adequately represent another; therefore not meeting ecosystem integrity requirements.

### Objector Proposed Remedy

This is an important first step because these ecosystems become the basic analysis unit for the ecological integrity requirement. It is possible that one ecosystem type in a group might not adequately represent another, but the rationale for the groupings is not displayed. Objector recommends that such a rationale be provided.

### Forest Service Response

The revised plan ecosystems were identified and defined by subject matter experts and partners as stated following criteria from Cleland et al. 1997, NatureServe (2012), and LANDFIRE. Rationale for ecosystems “considered land use history, ecosystem drivers, stressors, and natural disturbance regimes....The ecosystem groups represent common and rare community types, both of which are important for sustaining ecological and species diversity...These formed the basis for maintenance and restoration activities, for evaluating forest plan effects on ecosystem and species diversity and for interpretation of the natural range of variability.” (FEIS, p. 100). The ecosystems are crosswalked to NatureServe ecological systems and Mapped Ecosystems (Simon and Hayden) as displayed and explained in FEIS 3.3.1 Ecosystems (p. 100), FEIS appendix E (p. 92) and Table E-3 (p. 93), and Assessment documents. However, some additional clarification and rationale would help tie everything together.

### Instructions – See at end of Step 6

## STEP 2: IDENTIFY SPECIES.

The Assessment included 140 potential SCC. From these, 9 listed species and 67 SCC were “known to occur on the Francis Marion National Forest, and met rarity rankings for inclusion as at-risk species” (p. 94).

“Additional species were added based on input from recognized conservation experts within the state. Species were then screened for inclusion in the framework and designated as threatened and endangered or species of conservation concern” (p. 90). This screening process

documentation in another document is referenced (see earlier comments on SCC). Changes that occurred after the Assessment (the “additional species”) are important (in part because the Assessment would have to be updated to address them), but not described.

“During the assessment phase, with further refinement throughout the planning process, the biological planning team grouped species into ecosystem associations, based on known habitat requirements, and habitat drivers and threats ...” (p. 95). Habitat requirements for these species are not documented in Appendix E but should be. While there is discussion of such requirements for listed species in the Assessment, there is nothing similar for potential SCC.

The species associated with each species group are listed in Table E-5 (p. 96). Species may be in more than one group. Groupings are based on ecosystems, and also on the following finer-scale attributes of ecosystems:

- Stump and root mounds
- Road use
- Wildlife trees and large diameter hollow trees
- Forest openings

There is no discussion of any habitat requirements, threats or drivers for individual species in Appendix E. Nor were the ecological conditions needed to sustain particular species documented there, which is a requirement for demonstrating viability. If this information was documented elsewhere, Appendix E did not say how such information was used to develop desired conditions or other plan components.”

#### Objector Proposed Remedy

Recommend that the two species that were dropped (northern pine snake and eastern coral snake, p. 95) be further examined since they initially met the screening criteria (and did not receive any public comments).

In addition, the list of species was developed based in part on the “ecological needs” of the species (p. 94); those needs are not discussed anywhere but should be. They should have been considered for desired conditions.

Recommend the provision of information concerning the habitat requirements of potential SCC.

There is no discussion of any habitat requirements, threats or drivers for individual species in Appendix E; this information should be provided. Nor were the ecological conditions needed to sustain particular species documented there, which is a requirement for demonstrating viability. Objectors request that this information be provided. If this information was documented elsewhere, Appendix E did not say how such information was used to develop desired conditions or other plan components.

#### Forest Service Response

The two species dropped from consideration as SCC (northern pine snake and eastern coral snake) were dropped because the eastern coral snake did not meet the designation criteria

‘known to exist.’ As a G4/SNR species, northern pine snake did not meet the criteria for consideration as an SCC. Regarding “ecological needs” of at-risk species, the needs may not have been explicitly considered under those terms, but the tabular data supporting the Ecological Sustainability tool in Appendix E of the FEIS contains ample assessment of ecological values associated with key characteristics of the ecosystems in which the species occur.

Appendix E contains information concerning the habitat requirements of potential SCC. Additional information is provided in Sections 2.1.3 of the Francis Marion revised plan, and Sections 3.3.2 and 3.3.3 of the FEIS.

Appendix E contains information concerning the habitat requirements of potential SCC. Additional information is provided in Sections 2.1.3 of the Francis Marion revised plan, and Sections 3.3.2 and 3.3.3 of the FEIS. Threats or ecological drivers for individual at-risk species are contained in Section 3.3.2 of the FEIS, and the project record for the proposed SCC. However, additional explanations of the process and supporting information would improve clarity.

*Instructions – See at end of Step 6*

*Note:* On December 9, 2016, Glen Casamassa, Reviewing Officer for the Chief who addressed the objection issues related to the SCC list, instructed Regional Forester Tony Tooke to re-evaluate the 25 species identified in the objection, using the process found in 36 CFR 1909.12\_21.22b, as expeditiously as possible following the signing of the ROD for the Francis Marion Revised Land Management Plan.

**STEP 3: IDENTIFY AND DEFINE KEY CHARACTERISTICS (INDICATORS).**

This is a requirement of 1909.12 FSH 12.13. The Francis Marion was appropriately explicit and identified them in the Assessment (and the Assessment actually does use this information in an evaluation process). According to Appendix E, “Final determinations of ecological sustainability components (a new term, which does not refer to plan components) were based on expert input, subsequent additional information from a variety of sources, and habitat needs of associated species” (p. 90) Actual habitat needs and their relationship to these key characteristics are not documented.

“The following are key characteristics identified as important to (terrestrial) ecological integrity and associated species/species groups, and for which some Francis Marion-level digital data was available” (p. 100). (We suggest that these would be good candidates for desired conditions, but they are not discussed in the section on plan components below.)

- Percent of ecosystem dominated by characteristic native forest types
- Percent of ecosystem extent in “maintain” condition class (essentially a reference condition for longleaf pine ecosystems)



- Percent of the ecosystem meeting age criteria for old growth ( $\geq 100$  years)
- Landscape vegetation structure
- Percent of ecosystem extent in woodland, savanna, grassland (Table E-19 actually includes, forest, woodland, savanna, and early succession)
- Off-road vehicle trail density, paved open road density, and unpaved open road density (data “available upon request”)
- Percent of ecosystem extent impacted by non-native invasive plant species
- Percent of ecosystem burned at desired fire return interval AND percent of ecosystem acres burned during the growing season

Landscape vegetation structure is the only place historic conditions and “departure” are explicitly discussed, and the Assessment is referenced for more information. Table E-18, p. 104 lists the “departure rankings” for each ecosystem, but the calculation is not explained. Given the central role of NRV for ecological integrity in the planning rule, its role in all ecosystem characteristics and their rankings warrants discussion. There is also no documentation that demonstrates that this single ecosystem condition is a valid basis for determining viability of any species.

Performance measures for watersheds were developed by regional staff and used GIS datasets to assess watersheds in terms of sediment loads, pollution point sources, flow modification by dams and road crossings, and riparian land use. There is a similar list of key characteristics for aquatic ecosystems (p. 90). (They are listed in Table E-36, p. 123.) Appendix E does not document how these characteristics are relevant to at-risk species’ needs but should.

In addition, Appendix E makes the following statement (p. 90, emphasis added):

As performance measures were identified for both terrestrial and aquatic systems, criteria were set for rating each performance measure as poor, fair, good, and very good relative to ecological sustainability. To produce a quantitative result, these ratings were scored as integers 1 to 4 for each element, with multiple elements producing an overall score for the conservation measures being evaluated (Table E-2). In general, poor and fair ratings indicate areas of concern for supporting and sustaining a diversity of species (Table E-2).

There is no discussion of the basis for this conclusion, which will become the basis for viability compliance. It is important to know how the “criteria were set” and which “conservation measures” were being evaluated.

The discussion continues on p. 90: “Rationale and sources used in making choices were recorded in the ecological sustainability evaluation tool (ESE tool). This rationale and sources used in making choices are the key pieces of information needed to determine if plan components provide ecological conditions for at-risk species. For example, we might disagree that the old growth indicator weight should be a 3 when six others have a greater weight (Table E-20). p. 90) This ESE tool documentation has not been provided.

The use of indicators of conditions of key characteristics is a potentially useful evaluation tool, and indicators are included for each group of associated species. For example, for the “Wildlife Snag and Large Diameter Hollow Tree Associates,” the indicator is “number of snags per acre forest wide” (p. 195). However, this indicator is not determined or evaluated in the effects analysis. The disclosure of effects is simply this: “... under alternatives 2 and 3, plan components are designed to create and maintain snags and hollow trees at a higher level than alternative 1. As such, the direct and indirect effects for species in this group would be more beneficial than those under alternative 1.” This does not demonstrate that necessary ecological conditions would be provided and must be remedied. Note that this is the way that indicators are used for all species groups.

For some reason, “Forest Opening Associates” have been treated differently than the other groups. Table 3-49 provides a lot of information about the conditions they need, the rating system for those conditions, the weight given to the indicator, and current value of the indicator. To complete the viability analysis and disclosure, this table needs to include the estimated future values for each alternative. Something similar should be done for other species groups and their listed indicators.

#### *Objector Proposed Remedy*

Again, actual habitat needs and their relationship to these key characteristics are not documented but need to be.

Given the central role of NRV for ecological integrity in the planning rule, its role in all ecosystem characteristics and their rankings warrants discussion. There is also no documentation that demonstrates that this single ecosystem condition is a valid basis for determining viability of any species; we recommend that this documentation be provided.

Appendix E does not document how these characteristics are relevant to at-risk species’ needs but should.

It is important to know how the “criteria were set” and which “conservation measures” were being evaluated; we recommend that this additional information be provided.

This rationale and sources used in making choices are the key pieces of information needed to determine if plan components provide ecological conditions for at-risk species; we recommend that this information be provided. For example, we might disagree that the old growth indicator weight should be a 3 when six others have a greater weight (Table E-20). p. 90) This ESE tool documentation has not been provided.

This does not demonstrate that necessary ecological conditions would be provided and must be remedied. Note that this is the way that indicators are used for all species groups.

To complete the viability analysis and disclosure, this table needs to include the estimated future values for each alternative. Something similar should be done for other species groups and their listed indicators.

#### Forest Service Response

FEIS, p. 95 in Appendix E provides reasoning for grouping species as ecosystem associates, and relations to Key Ecosystem Characteristics, providing logic and criteria from expert meetings (including USFS expert meetings), Assessment-Ecological Sustainability-Ecosystems (Terrestrial, Aquatic and Watersheds). FSH 1909.12 Chapter 10, p 14: 12.13 explains in the section, “Identifying and Selecting Key Ecosystem Characteristics,” that “Key ecosystem characteristics provide a mechanism for assessing status of ecosystem conditions regarding ecological integrity. They were identified, selected, and assessed during the assessment phase, brought forward to help develop plan components, and may be useful when developing monitoring questions and indicators”. As explained in the FEIS, Appendix E, p. 90, species and species groups are linked to ecosystems and watersheds per their habitat needs, key characteristics are assigned to these systems.

201312 FM\_Draft FPA2.1 (From Assessment) provides additional departure rankings narratives for all ecosystems, informing determination of species viability; it is not based on one ecosystem condition as stated in the objection in Remedy 2. Low, et al 2010 and Landfire (also stated in Appendix E) are given as reference documents to provide information on rationale and calculations. NRV departure ratings are provided for each ecosystem in Table E-18, p. 104. Calculations for Structural departure analysis is included the GIS Project Record and listed in the following documents: StructuralDeparture\_AllFSOwn; StructuralDeparture\_Alt2; StructuralDeparture\_Alt3; Fire-AdaptedStructuralDiversity; FMPR\_GIS\_ProjectRecord\_Index; ProcessNotes.

In response to the statement (part of Issue/Remedy 2): “(We suggest that these would be good candidates for desired conditions, but they are not discussed in the section on plan components below.)” Definitions of key characteristics and desired conditions are listed above; key characteristics inform targets and desired conditions. [DSF-1]

Key Characteristic requirements were met, pursuant to 36 CFR 219.9(a)(2) for “Key characteristics associated with terrestrial and aquatic ecosystem types” and FSH 1909.12 chapter 20 for “How plan components for key characteristics of the ecosystem and habitat types contribute to the broader biodiversity of ecosystems across the plan area”. The coarse filter approach provided for relevancy of linking key characteristics to ecosystems. Data and information on species and key characteristics was disclosed in the Assessment: Species are linked to key characteristics per the ESE tool table.

“Table E-2. Overall sustainability condition scores” shows criteria “set for rating each performance measure as poor, fair, good, and very good relative to ecological sustainability.”

#### Instructions – See at end of Step 6

#### STEP 4: LINK SPECIES TO ECOSYSTEMS/WATERSHEDS.

Link species to the ecosystems and watersheds and identify any additional needs of species.

In the April 2014 meetings, experts helped link terrestrial and aquatic species to ecosystems and watersheds in which they occur. It was determined that species' needs were best met when species were grouped before linking them to ecosystems and, in particular, key characteristics of ecosystems are linked a given species groups' needs. This linkage allowed us to assess how well the ecosystem and watershed frameworks covered needs of these species. Where ecological conditions for these species were not covered by the ecological sustainability framework, additional characteristics, performance measures, and rating criteria were added so these species would be covered. Therefore, all species have their needs covered by ecological sustainability framework, or a combination of the ecological sustainability framework and other additional forest plan components (p. 91).

(A)ssuring maintenance of species diversity based on the one or two primary ecosystems they are associated with meets regulatory requirements and intent (p. 95).

The DEIS included an assessment of how well a species group represented a species. After we asked for an explanation of this "group weight" it was removed from the FEIS, but remains essential to understanding the reliability of the analysis. We continue to seek clarification on that matter.

#### Objector Proposed Remedy

The linkage of species groups and ecosystems is presented in Table E-4 (p. 96) (There is nothing similar for aquatic watersheds.). Apparently "covered" means that a species is adequately represented by ecosystem characteristics; this needs to be clarified. In addition, the rationale for this, as discussed in the quote above, needs to be provided

There needs to be a discussion of what ecosystem characteristics are relevant to particular species and the science that would support that. There should be a discussion of why species needed "additional other plan components." (There is a statement on p. 95 that, "all species could be linked to desired conditions ecosystems at the coarse filter scale.")

#### Forest Service Response

FEIS, 3.3 Biological Environment, p. 100,-226, along with associated Tables and Figures, and FEIS Appendix E and G, provide reasoning for grouping species as ecosystem associates (and named as such according to the ecosystems), providing logic and criteria, citing literature (FEIS Appendix E and G) and expert meetings (including USFS expert meetings).

The word “covered” in FEIS Appendix E p. 91 is synonymous with the word “met”. Aquatic species are grouped into River and Stream Associates and are found in the FEIS, pp. 190-191, FEIS Appendix E, Table E-11, Table E-36.

For the Assessment, species group weights were considered for initial species groups of species to species groups and also key characteristics/indicators to species groups (this is further explained below). Additional species groupings did not warrant weighting as these needs were met by the initial process and no requirement to use species group weights exists.

“Table E-2. Overall sustainability condition scores” shows criteria “set for rating each performance measure as poor, fair, good, and very good relative to ecological sustainability.”

Instructions – See at end of Step 6

#### STEP 5: DEVELOP PLAN COMPONENTS.

Appendix E makes the following statements:

- “Forest plan components were developed to provide ecosystem sustainability and ecological conditions for identified species based on the ecological sustainability evaluation framework. In some cases, current requirements and processes outside of the planning process were identified that address this goal. All elements of the ecological sustainability framework will be addressed by appropriate management direction in the forest plan.” (p. 91, emphasis added)
- “Desired conditions were developed for ecosystems in terms of composition, structure, connectivity, drivers, and stressors” (p. 94). A number of sources are cited.
- “A final list of all at-risk species identified on the Francis Marion and their associated coarse- and fine-filter management strategies are in Appendix D of the revised forest plan” (p. 149).

Appendix D lists desired conditions and objectives for each ecosystem. However, there is no discussion of which species are provided for by other requirements or what those requirements are. In addition, there is no mention of standards and guidelines needed for species viability.

The document goes on to state:

“Fine-filter strategies for species were developed where needed ...” “We included additional fine-filter provisions to ensure the conservation of federally-listed species and any associated critical habitat.” “Forest plan standards and guidelines were developed to address these fine-filter needs (the habitat feature associations like root mounds) to ensure that the plan promotes species diversity and ecosystem sustainability.” (p. 149, emphasis added)

An analysis that addresses this question of need, as well as a discussion of which species needed fine-filter strategies, or for what habitat needs is lacking. Also missing is a concluding discussion regarding which plan components provide ecological conditions for each species. And finally a discussion of how any plan components affect particular species groups or individual species is needed.

There is a statement that rare plant communities are “compatible with the desired composition, structure, function and processes of the associated native ecosystems at the coarse filter scale” (p. 149). This statement that fine-filter plan components are not needed is not substantiated.

Furthermore, the draft ROD states that, “The supplemental information on conservation strategies to manage habitat for South Carolina’s Species of Conservation was used to inform the analysis in the environmental impact statement and revised plan direction” (p. 28). While Appendix E mentions the State Comprehensive Wildlife Strategy as a source for identifying SCC, it is not mentioned in relation to the development of plan components, or in the body of the FEIS. For the ROD to make such a statement, the plan documentation needs to establish a clear link between specific recommended conservation measures and those adopted as plan components and it does not accomplish this.

#### Objector Proposed Remedy

Appendix D lists desired conditions and objectives for each ecosystem. However, there is no discussion of which species are provided for by other requirements or what those requirements are; that information needs to be provided. In addition, there is no mention of standards and guidelines needed for species viability.

There should be an analysis that addresses this question of need, as well as a discussion of which species needed fine-filter strategies, or for what habitat needs. There should be a concluding discussion regarding which plan components provide ecological conditions for each species. And finally there should be a discussion of how any plan components affect particular species groups or individual species.

This statement that fine-filter plan components are not needed needs to be substantiated.

For the ROD to make such a statement, the plan documentation needs to establish a clear link between specific recommended conservation measures and those adopted as plan components. Any other applicable species conservation strategies should be followed and adopted in the same manner.

#### Forest Service Response

The process we followed for species viability and developing plan components is directed by NFMA, the 2012 Planning Rule, and FSH 1909.12 Chapters 10 and 20. The framework used was based on the “Open Standards of Conservation” and “TNC Conservation Action Planning.” The specific steps are outlined in the Ecological Sustainability Evaluation (ESE) Tool User Manual

(posted on the Francis Marion National Forest website) and discussed in the Plan, 2.1.3 Species Diversity, and Appendix D, with data disclosed in the following: Table D-1. List of at-risk species on the Francis Marion, Table D-2. Species groups and associated ecosystems on the Francis Marion National Forest, Table D-3. At-risk species groups and associated species, Table D-4. Crosswalk of at-risk species and forest plan components. Supporting analysis is adequately disclosed in the Assessment, and FEIS Appendix E.

Standards and Guidelines for At-Risk species are found in the Plan, Chapter 4, and p 124: “4.2.1.6 Standards for At-risk Species and Ecological Sustainability” listing Standards 25 through 45. Plan, p 130, Chapter 4, Design Criteria, 4.2.2.7 Guidelines for At-risk Species and Ecological Sustainability Guidelines G32 to G41 address additional coarse and fine filter restrictions for ensuring ecological sustainability including at-risk species persistence in conjunction with desired conditions and objectives for ecological maintenance and restoration and species diversity. Guidelines G38 to G41 reduce the impacts of non-native invasive species and address the desired conditions in DC-THR-1 Non-Native Invasive Species Management. Other Standards and Guidelines are in alignment with species viability through management actions and restrictions. The revised plan, Chapter 4 states: Standards and guidelines are constraints placed on project and activity decision making. They help achieve or maintain the desired condition or conditions, avoid or mitigate undesirable effects or meet applicable legal requirements. They are adequate.

The fine-filter analysis is discussed in Appendix E, p 148, which states: “Forest Plan Components and Strategies we evaluated plan area conditions needed for all species using a coarse-filter/fine-filter approach. Desired conditions, objectives, and design criteria for maintaining and restoring ecosystem integrity provide coarse filter habitat provisions for all species. Fine-filter strategies for species were developed where needed to contribute to the recovery of threatened and endangered species, conserve proposed and candidate species, and maintain or restore ecological conditions for sustaining a viable population of each species of conservation concern where possible and ecologically feasible, given the capabilities of our land base. The following fine-scale provisions to address uncertainties in regard to at-risk species: Federally Threatened and Endangered Species Population Provisions –We included additional fine-filter provisions to ensure the conservation of federally-listed species and any associated critical habitat. Section 7 of the Endangered Species Act requires that Federal land management agencies do not jeopardize the continued existence of federally-listed species. At-Risk Species Population Provisions –We included additional fine-filter and monitoring provisions to ensure the conservation of at-risk species populations. Over 50 percent (41) of our at-risk species have only 1 or 2 known occurrences on the Francis Marion, and 66 percent have less than 5 known occurrences. In some cases, little is known about the distribution and the species is not well surveyed. Species associated with the following habitat characteristics are listed above: • Stump and Root Mound Associates • Wildlife Species Sensitive to Road Use Associates • Wildlife Snag and Large Diameter Hollow Tree Associates • Forest Opening Associates. Forest plan standards and guidelines were developed to address these fine-filter needs to ensure that the plan promotes species diversity and ecosystem sustainability.” .... “A final list of all at-risk species identified on the Francis Marion and their associated coarse- and fine-filter

management strategies are in Appendix D of the revised forest plan.” [Emphasis added]. Therefore the record adequately address use of a fine filter.

The revised plan in Appendix D, beginning on page 162 includes the following: Table D-1. List of at-risk species on the Francis Marion\*Table D-2. Species groups and associated ecosystems on the Francis Marion National Forest, Table D-3. At-risk species groups and associated species, Table D-4. Crosswalk of at-risk species and forest plan components (Note: T&E species habitat needs are also addressed by the desired conditions and objectives for various species group and the relevant forest plan components are listed here to provide a thorough crosswalk) p . These tables and additional information found in the Assessment (ecological sustainability) provide clear links between species needs and plan components.

Instructions – See at end of Step 6

#### STEP 6: ECOLOGICAL SUSTAINABILITY RATINGS.

Evaluate Ecological Sustainability Ratings to assess future outcomes at both 10- and 50-year time intervals.

##### a. Ecosystem indicator weights and ranks

For each ecosystem, a table assigns weights to each indicator and classifies the condition of each terrestrial indicator as poor, fair, good, and very good, corresponding to scores of 1-4 (starting on p. 107). Table E-36 does the same thing for aquatic ecosystems, but does not include the weights “based on indicator importance and percent national forest land” (p. 123). There are not adequate references to any science applied to this process.

This statement is also made:

Key characteristics, indicator values, and weights, were based on existing forest data, internal interdisciplinary expertise, and values used in other forest planning efforts in the Southern Region. (p. 106) Appendix E does list the characteristics, values and weights but documentation of the basis for selecting each of them is lacking. Each value in the table should be supported by the best available scientific information.

##### b. Expected “outcome” for each alternative (at 10 and 50 years)

Table E-21, and subsequent tables for each terrestrial ecosystem, gives indicator rankings for current conditions and alternatives (starting on p. 108). Tables E-38 through E-44 provide the same thing for each sub watershed (aquatic ecosystems). There are some “fair” and “poor” rankings for some indicators for the preferred alternative (many for no-action).

This statement is problematic:



Indicator values for the three forest plan alternatives were estimated for 10- and 50-year time periods based on expected results of alternative implementation followed by GIS analysis similar to that conducted for current conditions (p. 106). The only explanation of how “expected results of alternative implementation” were determined is, “Predictions were based on acreage in coarse filter maintenance and restoration management prescriptions, along with trends in those activities at 10- and 50-year intervals” (p. 91). The documentation does not clearly explain how plan components were used to determine effects on ecosystems or species and such an explanation should be provided. Nor does it provide an actual “result” in terms of ecological conditions, which is necessary. It provides percentages of ecological conditions, which suggests a quantitative analysis of changes in vegetation, but it should show the projected vegetation conditions. Similarly, numbers are provided for the aquatic indicators, with no explanation for them. Because these are expected to be the basis for viability determinations, more information is required.

#### c. Overall ecological sustainability rating for each ecosystem

These scores were calculated by multiplying indicator values (1 to 4) by indicator weights (1 to 4) then averaging. Table E-45 (p. 147) provides the results for each ecosystem group. (However, it does not address the other groups like root mound associations.) The terrestrial scores for the action alternatives range from 2.53 to 3.66. Only three scores are different between the action alternatives (lower for Alternative 3). Aquatic scores for all alternatives are 2.20 at 10 years, and 2.24 at 50 years.

These numbers are the basis for finding that the ecosystem sustainability requirement has been met. Since sustainability is defined as at least 2.5, terrestrial ecosystems are sustainable for both action alternatives, and aquatic ecosystems are sustainable for neither. “In general, declining overall scores over time indicate that alternatives may not adequately protect ecosystem sustainability and the diversity of associated species” (p. 91). There are no declining scores over time in the action alternatives. The best available scientific information that supports these conclusions about sustainability is not provided.

Appendix E also includes a discussion of the Watershed Condition Framework analysis (p. 151). Watersheds that are considered “properly functioning” “exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition (USDA Forest Service 2011a).” This sounds directly applicable to ecological integrity, and implies that a “natural potential condition”,

(NRV) has been determined, and that projections of conditions could be made for alternatives. This information is not clearly identified and should have been considered in the aquatic integrity analysis. Watersheds important to at-risk species should have been identified as priorities.

d. Viability determination for each species

The following statement is problematic:

The current condition and effects of forest plan alternatives on all species and species groups can be found in the final environmental impact statement, sections 3.3.3 and 3.3.4. (p. 95)

However, the referenced sections in the FEIS do not specifically address viability.

As is this statement:

Most plant and animal species needs are expected to be met by sustaining ecosystem diversity, but species-specific analyses were conducted to evaluate whether additional provisions were needed for federally listed species, Regional Forester's sensitive species, and locally rare species. The Regional Forester's sensitive species are evaluated in a biological evaluation. Some sensitive species are included as species of conservation concern and species groups are used to evaluate indirect effects in the biological evaluation (see appendix G). (p. 87)

The BE does include conclusions about viability for existing sensitive species, but does not refer to the ESE analysis.

An analysis and determination of viability is necessary to comply with 36 CFR 219.9(b)(1) and is not apparent here. It does not appear in Appendix E. Appendix G evaluates effects on individual listed species of the complete set of plan components. Appendix G does not address SCC that are not sensitive species. Elsewhere Appendix E provides conflicting information about whether fine filter, species-specific plan components are needed. Note that by assessing viability for groups of species, the conclusions for all species within that group are the same. There must be documentation indicating that this final step of determining viability for all at-risk species has been completed. As it stands, the description does not establish the reliability of its conclusions, nor does it properly substantiate that the revised plan would provide "the quantity and quality of habitat that is necessary to sustain the viability of the species in question."

The FEIS includes a section on effects on species of conservation concern. It asserts that plan components would, "emphasize ecological conditions that maintain and restore forested wetlands and habitat for the associated species group" (p. 176). However, this section is organized by ecosystem, and there is limited discussion of individual species. The analysis largely repeats the coarse filter analysis in the ecosystem section, and contains no justification for how this can represent effects on each species.

The FEIS states that one of the units of measure for addressing at-risk species is "acres managed for at-risk species" (p. 18). We could not find that measure evaluated for alternatives in the DEIS, and the response to our comment stated that these acres are displayed in Appendix

E and Appendix G of the FEIS. We did not find it there, so it appears that the Forest failed to disclose an important aspect of the environmental impacts.

#### Objector Proposed Remedy

In general, there should be references to any science applied to this process.

Appendix E does list the characteristics, values and weights but we recommend that there also be documentation of the basis for selecting each of them. (Each value in the table should be supported by the best available scientific information.)

The documentation does not clearly explain how plan components were used to determine effects on ecosystems or species and such an explanation should be provided. Nor does it provide an actual “result” in terms of ecological conditions, which is necessary. It provides percentages of ecological conditions, which suggests a quantitative analysis of changes in vegetation, but it should show the projected vegetation conditions. Similarly, numbers are provided for the aquatic indicators, with no explanation for them. Because these are expected to be the basis for viability determinations, more information is required.

We recommend that the best available scientific information that supports these conclusions about sustainability be provided.

This information needs to be clearly identified and should be considered in the aquatic integrity analysis. Watersheds important to at-risk species should have been identified as priorities.

An analysis and determination of viability is necessary to comply with 36 CFR 219.9(b)(1). However, it does not appear in Appendix E. Appendix G evaluates effects on individual listed species of the complete set of plan components. Appendix G does not address SCC that are not sensitive species. Elsewhere Appendix E provides conflicting information about whether fine filter, species-specific plan components are needed. Note that by assessing viability for groups of species, the conclusions for all species within that group are the same.

There must be documentation indicating that this final step of determining viability for all at-risk species has been completed. As it stands, the description does not establish the reliability of its conclusions, nor does it properly substantiate that the revised plan would provide “the quantity and quality of habitat that is necessary to sustain the viability of the species in question.” These issues must be addressed.

The analysis largely repeats the coarse filter analysis in the ecosystem section, and contains no justification for how this can represent effects on each species. This justification must be provided. The closest it comes to discussing effects on individual species is where it says, “Direction in the revised forest plan addresses specific habitat needs including, but not limited to” selected species (p. 176), and giving examples. Examples of effects do not constitute effects analysis; this needs to be remedied. The FEIS also includes the results of the ESE analysis for the ecosystems (cum “ecosystem associates”).

We did not find it there, so it appears that the Forest failed to disclose an important aspect of the environmental impacts. That information must be disclosed.

#### Forest Service Response

Best available science was appropriately used in the process, discussed and disclosed in the following places in the process record: FEIS, References, p 343; FEIS Appendix B, p 6: "Citations listed in the "References" section provide additional information including the best available scientific information in regard to specific analysis topics"; FEIS Appendix E, p 151: References Cited in this Analysis; FEIS Appendix G, p 236: VII. References and Other Data Sources. Scientific references are cited throughout all our documents then compiled - for the DEIS (pp.313-337) and FEIS (pp.343-367) and Appendix E (pp.151-152) and the Assessment (pp.473-516). Additional references specific to the ecosystem assessment section are enclosed draft ecosystem section of the assessment. 2013 Assessment References, and SEC1\_ECOSYSTEM 8\_13\_2013a.docx.

Species viability, coarse filter-fine filter approach analysis and determination has been reviewed in Sustainability Evaluation Objection Step 5 Issue 4, Sustainability Evaluation Objection Step 3 Issue 4, Sustainability Evaluation Objection Step 4 Issue 4, and Species Viability Analyses Issue 4. The approach is appropriate.

Ecological sustainability scores for ecosystems for 10 and 50 years along with discussion is found in Appendix G: Biological Evaluation and Biological Evaluation, Effects of Forest Plan.

Projection of alternatives is included in the water and streams section for 10-50 year expected outcomes. NRV is met; 201312 FM\_Draft FPA2.1 (From Assessment) provides additional departure rankings narratives for all ecosystems, informing determination of species viability. Low, et al 2010 and Landfire (also stated in Appendix E) are given as reference documents to provide information on rationale and calculations. NRV departure ratings are provided for each ecosystem in Table E-18, p. 104. Calculations for Structural departure analysis is included the GIS Project Record and listed in the following documents: StructuralDeparture\_AllFSOwn; StructuralDeparture\_Alt2; StructuralDeparture\_Alt3; Fire-AdaptedStructuralDiversity; FMPR\_GIS\_ProjectRecord\_Index; ProcessNotes.

Location may have changed from draft to final. Location: FEIS Chapter 3, p 170, Table 3-26. At-risk species groups and associated ecosystems and acreage on the Francis Marion National Forest, by alternative\*, p 170.

#### Instructions

- Clarify the determination (and supporting information) of ecological integrity and species diversity requirements in the ROD.
- Provide an additional document to specifically explain steps, rationale and calculations for ecological sustainability evaluations, including NRV and departure ratings, species linkages, and criteria to groups.

- Include ESE table in project record

#### SUSTAINABILITY AND VIABILITY ANALYSES.

The use of natural range in variation (NRV) and species in developing plan components and evaluating alternatives is described in Appendix E of the FEIS. While this ecological sustainability analysis of alternatives appears analytically rigorous, the analysis is largely based on unproven assumptions, with no actual analysis of the effect of plan components on future status of ecological conditions that could be used to predict species viability. It relies to an extreme degree on a coarse filter approach, to the point that individual species are not discussed at all (merely listed in a table). There are many statements characterizing what the Forest did, but no documentation of what they actually did do. This makes the statements conclusory and suspect under Administrative Procedures Act (APA) standards for a record that demonstrates a reasoned decision.

Appendix E summarizes the ecological sustainability analysis as follows:

Using a coarse-filter/fine-filter approach, the Francis Marion identified ecosystems and associated at-risk species, key ecological characteristics for ecosystems, forest plan level indicators for evaluating their status, forest plan strategies, and resulting ecosystem sustainability ratings. We considered the natural range in variation in evaluating our departure from reference conditions, and in developing forest plan components for maintaining and restoring ecological sustainability and integrity.” (pp. 88-89, p. 92)

In most cases, it’s not clear what the actual reference conditions or NRV are or how departures were determined. The only characteristic where this is discussed seems to be vegetation structure, based on NRV descriptions in LANDFIRE, in Table E-18 (p. 104). There is a single departure value for each ecosystem, but it is unclear what it means. (However, it does show up in Table E-21 for current conditions.)

Much of the analysis was done using the ecological evaluation tool (ESE):

Based on the structure of the Nature Conservancy planning tool, the Forest Service developed a relational database called the ecological sustainability evaluation tool. The ecological sustainability evaluation tool follows the open standards for conservation and served as the primary process record for the species and ecosystem diversity analysis. This tool also includes documentation of some of the scientific and other sources consulted, and data gaps during development of the database. Data gaps are also disclosed in the final environmental impact statement. The tool documented relationships among parts of the ecological sustainability framework. For example, species were often related to one or more ecosystem characteristics, and a given forest plan component frequently affected multiple ecological systems or species. The following steps were used to build an ecological sustainability framework, with each step documented within the ecological sustainability evaluation tool (ESE tool). (p. 89)

These relationships are not documented in Appendix E. They are also not available in the ESE documentation that was provided; it is a 2013 user's manual that does not include data specific to the Francis Marion. If there is another document that is the "primary process record," it has not been made available for review. This "black box" approach does not contribute to public understanding of the environmental impacts of the revised plan. We suspect – based on the weaknesses we have identified in plan components – that inappropriate conclusions and assumptions have been made about the plan's effects.

The planning rule, at 36 CFR 219.9(b)(1), requires the Responsible Official to determine whether plan components, including standards or guidelines, to maintain or restore ecosystem integrity and ecosystem diversity provide sufficient ecological conditions for at-risk species, or if plan components specifically directed toward providing specific conditions required by such species must be developed (see FSH 1909.12 23.13). There are some species-specific plan components for some species. However, the available documentation does not demonstrate that the ecological conditions needed by the remainder of the species are adequately provided by the ecosystem components.

#### *Objector Proposed Remedy*

These relationships are not documented in Appendix E but should be. They are also not available in the ESE documentation that was provided; it is a 2013 user's manual that does not include data specific to the Francis Marion. If there is another document that is the "primary process record," it has not been made available for review but should be. This "black box" approach does not contribute to public understanding of the environmental impacts of the revised plan. We suspect – based on the weaknesses we have identified in plan components – that inappropriate conclusions and assumptions have been made about the plan's effects.

Documentation of this demonstration needs to be provided.

#### *Forest Service Response*

The Ecological Sustainability Evaluation Tool and framework is "based on the structure of the Nature Conservancy planning tool" and the process aligns with the 2012 Planning Rule and the FSH 1909.12 Chapters 10 and 20. Uncertainties are considered and adaptive management is embedded in the revised plan, 2.1.3 Species Diversity, p 41: 'Our list of at-risk species known to occur on the Francis Marion National Forest is in Appendix D, and may change over time as we gain additional information about these species - and their rarity.' And in Chapter 5 Monitoring stating "Possible needs for change to the forest plan- Detect changing conditions, risks, and uncertainties that require adaptive responses; and Whether a change to the plan monitoring program is warranted based on new information." Assessments and analyses were completed using the ESE framework with steps described in detail in the ESE User Guide 2016 V4.1.

The relationships for species viability are documented in the above listed documents and particularly Appendix E, with the narrative of the process steps, and data displayed as tables and figures. The ESE Tool manual originally posted was to provide transparency as to the

process and steps, basic architecture, rationale, history, purpose and need. As a user manual, it was not intended to provide FMNF data. The updated version, ESE User Guide 2016 V4.1 will be provided. The FMNF data is included in the above mentioned planning documents in narratives and as Tables and Figures.

Calculations for Structural departure analysis is included the GIS Project Record and listed in the following documents: StructuralDeparture\_Alt1; StructuralDeparture\_Alt2; StructuralDeparture\_Alt3; Fire-AdaptedStructuralDiversity; FMPR\_GIS\_ProjectRecord\_Index; ProcessNotes.

201312 FM\_Draft FPA2.1 (From Assessment) provides additional departure rankings narratives for ecosystems. Low, et al 2010 and Landfire (also stated in Appendix E) are given as reference documents to provide information on rationale and calculations. NRV departure ratings are provided for each ecosystem in Table E-18, p. 104. Reference states and departure ratings were input into the ESE Tool as part of the process record and adhere to law, regulation and policy.

Plan components meet ecological conditions to meet species viability.

Instructions - See at end of Step 6 (found above)

## UPLAND LONGLEAF AND LOBLOLLY PINE WOODLANDS

We are not certain of whether or how these components or effects might have been incorporated into the viability analysis;

### DC-ECO-2. Upland Longleaf and Loblolly Pine Woodlands

“This ecosystem provides habitat for DC-T&E-1. Frosted Flatwoods Salamander, DC-T&E-2. Red-Cockaded Woodpecker, DC-T&E-3. American Chaffseed, and DC-SCC-7. Upland Pine Woodlands Associates. See Figure 2-6 for Desired Conditions of this ecosystem.”

This desired condition typifies the approach to providing for at-risk species. It states a desire to provide habitat for these species in a particular ecosystem. It goes on to provide a description of the desired ecosystem conditions, and Figure 2-6 provides a picture of the desired stand condition. Some of these vegetation conditions are quite specific and measurable.

The discussion of the scientific basis for establishing these ecosystem conditions as desired conditions is missing. In particular, there must be a reference to the Natural Range of Variation [NRV] as required by the planning rule.

Upland longleaf woodlands, along with loblolly woodlands and wet pine savanna, form a matrix of pine forests which support a primary core population of the federally endangered red-cockaded

woodpecker and provide ecological conditions needed by many other wildlife species (e.g., Bachman's sparrow and Northern bobwhite quail) and at-risk species (e.g., American chaffseed).

For at-risk species, the Forest did not show they considered "the key ecosystem characteristics, ecosystems, and ecological conditions necessary to sustain the at-risk species" (1909.12 FSH 23.11b5b) because The Forest should have also considered, "The key habitat relationships of the species by ... 1) Evaluating the connection between habitat conditions and population consequences" (1909.12 FSH 23.132b).

#### Objector Proposed Remedy

In addition, there must be a discussion of the scientific basis for establishing these ecosystem conditions as desired conditions. In particular, there must be a reference to the NRV as required by the planning rule.

For at-risk species, the Forest should have considered "the key ecosystem characteristics, ecosystems, and ecological conditions necessary to sustain the at-risk species" (1909.12 FSH 23.11b5b). This requires a demonstration of the relationship of species to selected ecosystem characteristics. The Forest should have also considered, "The key habitat relationships of the species by ... 1) Evaluating the connection between habitat conditions and population consequences" (1909.12 FSH 23.132b).

#### Forest Service Response

The Natural Range of Variation [NRV] is a planning tool used to assess ecosystem integrity; NRV is not a management target or desired condition. NRV is referenced in both the revised plan and FEIS as a standard for comparison during the analysis for ecological sustainability, as required by the FSH 1909.12 Chapter 10. 12.14a.

Plan components were described and assessed for DC-ECO-2. Upland Longleaf and Loblolly Pine Woodlands as part of the Ecological Sustainability tool, as described in Appendix E of the FEIS. Table E-20 Upland Longleaf Pine Woodlands: Key characteristics, indicators, weights and indicator value categories (pg. 106) and Table E-21 Upland Longleaf Pine Woodlands: Indicator values for current conditions and alternatives (pg. 107) describe key characteristics and indicator categories for Upland Longleaf Pine Woodlands (which, in this context, would include loblolly pine woodlands growing in conditions that would support longleaf pine ecosystems). These conditions are associated with at-risk species in Table D-3 At-risk species groups and associated species, and Table D-4 Crosswalk of at-risk species, of Appendix D in the revised plan (pp. 167-184).

The scientific basis for assessments of ecosystem values is detailed in Tables E-20 through E-35 in Appendix E of the FEIS (pp. 107-122), as well as the ensuing section of Appendix E, titled Forest Plan Components and Strategies (pp. 149-152). Appendix E also contains a section titled References Cited in this Analysis, which lists scientific papers that support the analysis in



Appendix E (pp. 151-152). The forest has provided detailed descriptions and scientific literature in support of its analysis for ecosystem values.

Instructions

N/A

WOOD STORK ROOKERIES NEED STANDARD FOR PROTECTION

At Risk Species, wood storks. The Biological Assessment bases its “not likely to adversely affect” determination on findings that wood stork “preferred nesting sites would not be actively managed,” and “management actions would follow guidelines to avoid harm or harassment if rookeries were found” (p. 223). This seems contradictory.

Objector Proposed Remedy

There should be standards or guidelines in the plan that avoid preferred nesting sites or rookeries.

Forest Service Response

Habitat for wood storks – primarily in the form of nesting sites or rookeries – would be excluded from forest management as part of the revised plan. Also, if wood storks are found on the forest, the storks and their rookeries would be addressed through USFWS guidance, continuing to exclude forest management that could potentially affect the storks. Other forms of management, however, could be used to assess and improve habitat for wood storks, if the management actions were consistent with USFWS guidance.

Instructions

N/A

INCREASED RISK TO WILDLIFE IN MANAGEMENT AREA 2 MUST BE OFFSET

The plan properly recognizes that ecological integrity may not be achieved on all parts of the national forest because of “adjacent development and human activities” (p. 39). We interpret this to mean “adjacent human development” because human activities on the national forest are subject to management by the Forest Service and must be managed to meet diversity requirements. It describes desired conditions for MA-2 that are different from desired conditions for MA-1. It also states that, “deviation from the desired conditions for fire-adapted longleaf ecosystems would be likely to occur.”

Objector Proposed Remedy

This suggests an increased risk to wildlife found in MA-2 that must be offset by more protective and certain management of MA-1 to provide the required integrity for each ecosystem as a

whole. For example, less of MA-1 than NRV should be in the young age class to offset the greater amount in MA-2.

### Forest Service Response

The revised plan, FEIS and Appendix G disclose the specific need for different management in MA 1 and 2, “based on our ability to apply frequent, low-intensity fire on a landscape level and how that would affect our ability to achieve desired conditions for these ecosystems.” This follows direction in both the 2012 planning rule and FSM 1909.12 relating to NRV and Responsible Official decisions. The revised plan, Chapter 2, 2.1.2 Management Areas provides additional direction on the coarse-filter conditions based on our ability to provide the desired fire return intervals in Table 2-1. While there are several important ecological processes (fires, storms, floods, insect outbreaks, etc. . .), the desired conditions focus on ones that we can actively manage notably fire through prescribed burning. The restoration of fire-adapted ecosystems (desired fire return interval of 5 years or less) is closely linked to our ability to apply frequent (1-3 years), low-intensity fire at a landscape level. To address the role of fire in restoration of these ecosystems, two management areas (See Figure 2-2 and Table 2-2 below and Appendix E for additional map) were developed based on our ability to apply frequent, low-intensity fire on a landscape level and how that would affect our ability to achieve desired conditions for these ecosystems.

### Instructions

N/A

## OTHER PLAN COMPONENTS AND EFFECTS.

The general formula used for effects “analysis” appears to say 1) that desired conditions will occur and that 2) the effects that could occur would be mitigated by the standards and guidelines that were included to address those effects. This is not adequate.

The BE treats “management strategies” the same as plan components (p. 235).

In relation to cumulative effects, there is a description of a “management strategy” for collaboration on p. 171, which apparently is referring to OBJ-SCC-3. While the EIS should not attribute effects to decisions that are not in the plan, they may have some relevance to cumulative effects. Emphasis on habitat connectivity was left out and none of this “management strategy” are actually plan components.

The effects analysis appropriately distinguishes effects between management areas, since the acreage difference is really the only substantive difference between the action alternatives.

Generally, it is important for the ROD to explain the reasons why Alternative 2 was selected, and that must be based on the plan components in the alternative. Extraneous material that may have been included in the set of plan documents cannot be the basis for this decision.

For example, one of the reasons the draft ROD gives for the revised plan protecting at-risk species is “our intent to develop strategies with adjacent community developers to improve opportunities and conditions to conserve” them (p. 8). However, there are no plan components that address adjacent community developers, and references to other collaboration to benefit wildlife are found only in a “management strategy” for OBJ-SCC-3. Thus this “intent” in the ROD is not a valid basis for making this decision.

Similarly, the draft ROD states that, “The revised plan links the Francis Marion to the broader landscape through migration corridors” (p. 28). The revised plan does address this, but only in one RIZ (DC-RIZ-Wambaw-1) and only for priority watersheds.

### Objector Proposed Remedy

There needs to be actual analysis of future conditions and effectiveness of mitigation. As it stands there is little actual analysis. For example, a desired condition in DC-ECO-2 is, “Mature components of upland longleaf pine woodlands are open, with canopy closure typically less than 60 percent (40-70 square feet of basal area).” Then, the “direct and indirect effects” of Alternative 2 on the same ecosystem are, “Canopies would be open with canopy closure typically less than 60 percent (40 to 70 square feet basal area) ...” (p. 106). NEPA requires more than this. It is especially important for the NEPA process to adequately address the broad-scale cumulative effects of anticipated projects needed to achieve and maintain the desired condition if the Forest intends to tier to forest plan NEPA at the project level. And the importance of project-level NEPA will be elevated for SCC since there will not be project-level viability analysis requirements similar to those now in place for sensitive species.

This must be remedied moving forward because it is contrary to the Planning Rule, which requires consistency with plan components, but not with management strategies. This difference in certainty must be recognized in the effects analysis, but instead we suggest that these management strategies are necessary to provide ecological conditions for these species and therefore should be included as plan components.

We are intrigued by the idea that the effect of “improved partnerships” was factored into the ESE analysis so that it shows up in the sustainability rankings (p. 176). However, we wonder why the emphasis on habitat connectivity was left out. We also think that some of this “management strategy” should actually be plan components; in particular, “Align land ownership adjustments to improve connectivity among habitats for at-risk species where needed” should be an objective to guide land adjustment planning, which would make it more likely the desired results would occur.

There needs to be a logical explanation of why an alternative’s conclusions about sustainability would be based solely on MA-1 (p. 107).

We believe that this cross-boundary coordination is important, especially with regard to habitat connectivity, and therefore at least a desired condition for working with community planners and developers should be included.

The revised plan should provide a greater extent and specificity of the locations of these corridors.

### Forest Service Response

#### ADEQUACY OF ANALYSIS AT A PROGRAMMATIC LEVEL

The Forest prepared a programmatic analysis that is adequate, appropriate at the forest plan scale, and consistent with the 2012 Planning Rule Decision and Rationale section which reads, “any commitment of resources takes place only after (1) a land management plan is approved under the provisions of the final rule (including the completion of the appropriate NEPA process), and (2) the Forest Service proposes projects or activities, analyzes their effects in the appropriate NEPA process, determines consistency with the applicable land management plan, and authorizes the final projects or activities” (36 CFR 219 USDA Forest Service 2012, preamble pg. 21192 Relationship of plan decision to project-level plans and decisions).

Although the FEIS did include the header of “direct and indirect effects” by alternative, the predicted (or possible) effects are qualitative and do not truly disclose direct effects as they do not authorize site specific projects. The effects analyses focuses on the major impacts that might result in the long-term if the plan were implemented, especially on those resources or factors that are adversely impacted. In the example provided, it is reasonable for the evaluation of potential effects at the plan level knowing a project must be consistent with the forest plan and would be designed to move towards forest plan desired conditions. Likewise, it would not be reasonable for environmental consequences to be based on potential effects that are a result of non-compliance with the revised plan.

The environmental consequences displayed in chapter 3 provide a reasonable prediction of consequences for any individual location on the Forest. However, it was not intended to describe every environmental process or condition or the mitigation that may be needed to reduce the impact of a site-specific action. Therefore, providing an analysis that includes mitigation is not possible –there is no site specific proposal. Site-specific impacts do not need to be evaluated until a proposal has been made to act on site development and those affects are reasonably foreseeable.

At the forest plan scale, a cumulative effects analysis integrates the actions/activities and trends occurring on other national forests and non-NFS lands into a broader “landscape” analysis. The provisions of the 2012 planning rule (§ 219.4(b)) include requirements to coordinate planning efforts with the equivalent and related planning efforts of federally recognized Indian Tribes, Alaska Native Corporations, other Federal agencies, and State and local governments. For the programmatic plan cumulative effects analysis, the Forest compared relevant plans and policies to the alternatives developed for NFS lands, and then described

what the predicted “effects” would be at that multi-land ownership level. Appendix F of the FEIS provides a list of county and state agency government plans that informed the cumulative effects analysis.

Cumulative effects were described as whether and how the effects of each alternative accrue cumulatively with the effects of other plans or planning efforts. The cumulative effects analysis focused on the long-term outcomes of these plans as they pertain to the broader landscape. For example, the soils analysis (FEIS, p. 55) provides a general overview of how past and present activities generally result in localized loss in soil productivity and described how effects concentrate on what is happening on the national forest and immediately adjacent areas and not at landscape or watershed scales. Another example is on page 67 of the FEIS which describes the potential for lowering of water tables due to groundwater withdrawals that may occur off NFS lands as population growth and increased demand for water occurs. Also see FEIS, Appendix H, p. 273.

To summarize, the analysis conducted by the Forest is consistent with 2012 Planning Rule requirements (36 CFR 219) and the cumulative effects analysis was carried out in accordance with 40 CFR 1508.7 and 36 CFR 220.4(f). At the plan level it would not possible to address the cumulative effects of future projects that may be speculative in nature. During site-specific analysis, those ongoing and reasonably foreseeable projects and actions that are relevant to the proposed action and potentially affected resources (such as SCC) would be evaluated.

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#### PLAN COMPONENTS AND MANAGEMENT STRATEGIES FOR AT RISK SPECIES

As for plan components and management strategies, the Forest developed plan components and identified optional plan content (management strategies) that are consistent with the 2012 Planning Rule. The 2012 Planning Rule at 219.7 (e)(2) identifies potential management approaches or strategies as “optional content in the plan (USDA Forest Service 2012). The FEIS at page 171 identifies the management strategies that would be used to maintain and restore populations and associated habitat for at-risk species on all lands – not just NFS lands. Forest plan components provide the direction needed to maintain or provide ecosystem integrity and diversity for SCC. The Forest Service cannot impose requirements (standards and guidelines) on non-NFS lands or partners. However, the management strategy provides the road map for working with all partners to restore populations and habitats. See the FEIS at page 169: “Forest plan components for ecological conditions that provide for ecosystem integrity and ecosystem diversity are the primary context for the evaluation of at-risk species, including species of conservation concern.... Anticipated direct, indirect, and cumulative effects of forest plan coarse and fine filter provisions to species viability, within the context of each species group, is disclosed below. A viable population is defined as a population of a species that continues to persist over the long term with sufficient distribution to be resilient and adaptable to stressors and likely future environments (36 CFR 219.19).

Appendix H of the FEIS response to concern #89 (p. 261) also provides context to forest plan components and SCC, “The revised forest plan’s components and alternatives in the FEIS

sufficiently represent these species. We used a coarse-filter/fine-filter approach to managing habitats for “at-risk species” on the Francis Marion. The habitat requirement for many species are addressed by restoration of ecosystems, which serves as a coarse-filter. For some “at-risk species”, fine-filter forest plan components are needed. Desired Conditions, objectives, standards and guidelines were developed to address the fine-filter approach for “at-risk species” on the Francis Marion. Based on the analysis in the FEIS, we disclose effects of the range of alternatives which effect the amount and distribution of fire-adapted ecosystems providing habitat for these species within the FEIS, Chapter 3.3.”

Appendix D of the revised plan includes a crosswalk of forest plan components and at-risk species. Any future projects which may include areas occupying federally listed species would not be implemented without the concurrence of the USFWS.

To summarize, the Forest developed plan components and identified optional plan content (management strategies) that are consistent with the 2012 Planning Rule. It is not feasible to impose requirements (standards and guidelines) on non-NFS lands or partners.

As mentioned, the Forest developed plan components and identified optional plan content (management strategies) that are consistent with the 2012 Planning Rule. Management strategies describe how the Forest Service intends to move the Forest's resources toward desired conditions, including objectives and management approaches to implementation. Management strategies are not plan components and do not require compliance, but instead, they describe potential ways about how objectives may be achieved (Revised Land Management Plan, p. 4). The forest plan addresses habitat connectivity for the entire plan area as it is not only specific to SCC (as noted on p. 121). Connectivity direction in the plan can be found as follows: for ecosystem and maintenance of old growth and nine native ecosystems ( p. 32), for wetlands (p. 29), aquatic species (p. 47), species diversity j(p. 53), streams (p. 60), ecosystem (p.75), objective for Carolina Gopher Frog (p. 120), roads (p. 126) and monitoring (pp. 147, 192).

The “Consider the Broader Landscape” objective (OBJ-COM-4), as currently written in the revised plan, addresses the need to use land acquisition and conveyance as tools to consolidate national forest and ecosystems through the management strategy. Adding language to the objective that would be meaningful would be difficult because objectives need to be time-specific and measurable. However, language that would provide additional habitat connectivity direction could be added to a forest-wide desired condition and three Resource Integrated Zones (RIZ). This additional direction would builds upon existing conservation agreements (see Revised Land Management Plan, figure 1-1) and the work that is currently occurring with partners. (See instructions)

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#### EFFECTS ANALYSIS AND RATIONAL FOR SUSTAINABILITY

The effects analysis is consistent with CEQ regulations 40 CFR 1502.24 and adequately discloses the environmental impacts of the proposal and the alternatives in comparative form, sharply defining the issues and providing a clear basis for choice among options by the decision-maker

and the public in a manner that allows the reader to compare and contrast. The revised plan, at page 12, describes Management Area 1 as the portion of the Francis Marion where frequent, low-intensity fire can be used at the desired fire return interval for various ecosystems including the fire-adapted ecosystems. Management Area 2 is described as the portion of the Francis Marion where management efforts will have to focus on providing wildlife habitats using herbicides, mechanical methods, etc. (USDA Forest Service 2016).

The FEIS states, “In the next 10 to 50 years in alternative 2, both upland pine woodland and wet pine savanna ecosystems are likely to be maintained and restored at sustainable levels across the Francis Marion, based on management direction and ecosystem extent within management area 1. Estimates of ecosystem integrity show improved conditions under alternative 2 (Figure 3-10 and Figure 3-11). The majority of indicators are ranked good and very good, with the exception of unpaved open road densities, which were ranked poor, and anticipated to remain poor, within upland pine woodland ecosystems, since the existing road network may be needed for restoration and access. Sustainability indicators are likely to improve after 50 years, for these reasons: 1. Restoration to achieve desired conditions and outcomes is likely to take years to achieve; and 2. the agency is limited in its capacity to implement the restoration of longleaf forest types in the next 10 years alone”.

The rationale on why Management Area 1 is key to sustainability can be found on FEIS in the “Direct and Indirect Effects” section on pages 105 and 106. The analysis states, “Objectives and desired conditions would address the maintenance and restoration of upland longleaf and wet pine savanna and flatwoods ecosystem composition, structure, function, and connectivity...Longleaf and wet pine savanna ecosystems and associated species will be indirectly impacted or at least not benefitted, and will lack the desired composition, structure, and function in management area 2 where, to supplement burning and reduce fuels away from management area 1, the agency would rely on mechanical and chemical means of woody treatment at wildland-urban interfaces, and selective treatments with herbicides” (FEIS, pp. 105-106). The FEIS discloses the percent of the pine woodland maintained or restored in management area 1, “Indirectly, upland pine woodland composition, structure, function, and connectivity would be maintained and restored on 33,500 acres (64 percent of the total extent) and wet pine savannas and flatwoods would be maintained, improved and restored on 58,100 acres (67 percent of the total extent) within Management Area 1.

The analysis does provide sustainability comparisons by alternative using the same criteria. For example, the sustainability related to alternative 1 can be found in the FEIS on page 105. In this alternative, Management Areas 1 and 2 would not exist and the determination of effects states, “In the next 10 to 50 years, it is anticipated that the direct, indirect, and cumulative effects of this alternative on the sustainability scores for upland longleaf and loblolly pine woodlands would be fair to poor (see Figure 3-10 and Figure 3-11). These low scores are primarily due to less frequent growing season fire, non-native invasive species prevention and control efforts, and connectivity stressors”. In alternative 3, the analysis notes the primary difference between Alternatives 2 and 3 is the configuration of management area 1, where fire-adapted ecosystems such as pine woodland and savanna maintenance and restoration is emphasized, is somewhat

smaller under this alternative than alternative 2. The analysis provides the sustainability “effects determination” on page 107, “In the next 10 to 50 years, it is anticipated that the direct, indirect, and cumulative effects of alternative 3 on sustainability of upland pine woodlands would approach be good to very good (see Figure 3-10 and Figure 3-11). Although less restoration would occur under this alternative, the categorical score used is the same as that for alternative 2 (see appendix E for values). Approximately 58 percent of the ecosystem extent would be maintained and restored in this alternative, and connectivity stressors would remain fair”.

Although not part of the remedy, the objection references Draft ROD. The draft decision provides the rationale for the selected alternative on pages 5 to 17. The rationale states, “How the revised land management plan responds to the six “need to change” themes were key to my decision. I evaluated how the revised plan integrated the interests and concerns expressed by our public, how it met the requirements of the Rule, and considered the likely outcomes that should result from implementing the revised plan”. In conclusion the analysis provides an adequate comparison of environmental consequences by alternative and the decision provides the rationale for selecting Alternative 2.

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#### DESIRED CONDITIONS, OBJECTIONS AND WORKING WITH PARTNERS

The Forest also adequately (and effectively) imbedded the concept of working with partners to achieve desired conditions and objectives in the revised plan and did not restrict this to habitat connectivity.

In the revised plan it is a key component in the social and economic sustainability section (Section 2.2), management areas in the context of fire-adapted ecosystems at the landscape scale (Section 2.1.2, p. 39), stressors and threats (Section 2.1.5, p. 52), as part of a connected landscape (Section 2.2.3, p. 63), in specific geographic zones including the Coast Resource Integration Zone (Section 2.3.1, p. 67), the Wando Resource Integration Zone (Section 2.3.2, p. 76) and the Santee Resource Integration zone (Section 2.3.4, p. 96), in the ecological sustainability section of the plan (Section 3.1.1, pp. 105, 107-109, 112-118) and as part of the monitoring plan (Chapter 5). Also see the “Consider the Broader Landscape” objective which specifically identifies (in a management strategy) priorities for conservation work due to potential development (OBJ-COM-4, p. 116). However, language that would provide additional habitat connectivity direction could be added to a forestwide desired condition and three Resource Integrated Zones (RIZ). This additional direction would build upon existing conservation agreements (Figure 1-1) and the work that is currently occurring with partners. (See instructions)

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#### PLAN COMPONENTS AND HABITAT CONNECTIVITY

The revised plan provides plan components that address habitat connectivity and corridors at the appropriate (plan level) scale. The term “migration corridor” was attributed to priority watersheds as it relates to restoring ecosystems in order to link habitats across the landscape



(p. 89). However the need for connectivity and corridors is imbedded throughout the revised plan. Desired conditions for old growth and nine native ecosystems are described in terms of the desired composition, structure, ecological processes, and landscape structure and connectivity, as well as our anticipated response to stressors (Section 2.1.1, pp. 20 -103). The importance of corridors can be found in the desired condition for Management Area 2 (p. 40) and for watershed restoration (p. 49).

The revised plan provides adequate direction for maintaining or achieving ecological and species diversity which provides (migration) corridor opportunities. The desired conditions, in addition to species needs, would provide the information that would be used in site specific analyses in which the need to maintain or increase habitat corridors are included. The extent and specificity of these locations would be determined using the most current and relevant best available science and information to evaluate species habitat needs with site and habitat conditions that are specific to the planning (project) area.

#### Instructions

- Clarify that protected public and private lands (including lands under conservation easements) inform land adjustment decisions under Forest-wide desired condition DC-COM-1.
- Clarify coordination efforts with Berkeley County to implement green infrastructure and the Blueway Plan are important to the desired condition of Wando, Wambaw and Santee RIZs.

#### DESIRED CONDITIONS DO NOT PROVIDE FOR OLD GROWTH

The Objector does not agree that desired future conditions will protect legacy remnants on national forest lands. The FEIS also incorrectly misquotes standard S37 as requiring that current old growth stands be “maintained.”

#### Objector Proposed Remedy

As a result, this conclusion from the effects analysis is flawed and should be remedied: “Through S37, stands meeting age criteria for old growth would be maintained using the age criteria in the Region 8 Old Growth Guidance.”

In addition, with only 30,000 acres of potential old growth (of which 20,000 is currently protected), none of these should be excluded from the old growth network envisioned by the desired condition, and designation in the revised plan based on the best scientific information. We don’t understand that the phrase “future old growth-compatible allocations” could include those where harvest of old trees is required. That would be the case on any lands suitable for timber production.

#### Forest Service Response

In this issue, the Objector makes the statement that the desired conditions will not protect the “legacy remnants” (current old growth) on the national forest. Protecting existing old growth is addressed in the objection issue – Ten Percent Old Growth Objective and Standard to Protect Old Growth - so that discussion won’t be repeated here.

The Objector also states that the FEIS incorrectly misquotes standard 37 as requiring that current old growth stands be “maintained”. A review of the FEIS shows that it does misquote Standard 37 on pages 208 and 209 that stands meeting the criteria for old growth will be “maintained”, while the Revised Forest Plan has Standard 37 as “identifying” old growth stands and then “considering” their contribution to providing for a network of old growth areas across the landscape.

In the remedy, the Objector questioned how “future old growth compatible allocations” could include allocations where the harvesting of old trees would occur. The acres identified in the FEIS as “future old growth” are made up of those lands identified as unsuitable for timber production (which includes wilderness areas, riparian management zones, and various other special and designated areas, all of which totals 65,602 acres); rare communities; pine stands within RCW 0.5-mile foraging partitions within Management Area 1; and Depressional Wetlands and Carolina Bays, Pocosins, and Narrow Forested Swamps and Blackwater Stream Floodplain Forests within Management Area 1. (See FEIS, page 207.)

The pine stands within the RCW 0.5-mile foraging partitions in MA 1 and the pines in the Depressional Wetlands and Carolina Bays, Narrow Forested Swamps and Blackwater Stream Floodplains in Management Area 1; are counted as “future old growth”, even though they are in lands classified as “suited for timber production”. This is because once these stands have been converted to longleaf pine and have reached the age for being considered as old growth (120 years old), uneven-aged harvesting techniques will be used to maintain the desired conditions for these stands, which includes creating and maintaining desired open canopy conditions. (See FEIS, Appendix B, pp. 11-14.)

### Instructions

- As is identified in the “Ten Percent Old Growth Objective and Standard to Protect Old Growth” issue, Standard 37 in the revised plan will be reworded.
- In the FEIS on pages 208 and 209, update the reference to Standard 37 to match the new language for S37 that will be in the revised plan.
- Review the description of the “effects” on pages 208 and 209 of the FEIS to ensure changes to S37 are reflected.
- Review documents in the project record to ensure descriptions of what was identified as “future old growth” on page 207 of the FEIS and what was used to calculate the acres of future old growth match.

## TIMBER MANAGEMENT AND NFMA

The revised plan violates NFMA requirements for timber management and sustained yield. The plan includes areas identified as suitable for timber production that should have been classified as not suitable. The plan includes a sustained yield limit that is based on lands that are not suitable for timber harvest, overestimates timber volume and fails to limit timber harvest as required by NFMA, and it proposes a departure from non-declining even flow of timber without following the procedures required by NFMA. The result is establishing timber volume objectives that are unsustainable and creating unforeseen environmental effects.

### Old Growth And Timber Suitability

The discussion of old growth in relation to suitability is not entirely clear (p. 11). We agree that other unsuitable areas would provide old growth, but such areas would not necessarily address the needs for RCW foraging areas.

#### Objector Proposed Remedy

If this is referring to areas identified as unsuitable because it is being managed as old growth, we would agree they should be unsuitable, but there have been no such areas identified, nor are particular amounts of unsuitable old growth areas accounted for among the unsuitable acres.

#### Forest Service Response

The remedy provided by the objector asks, “If this is referring to areas identified as unsuitable because it is being managed as old growth, we would agree they should be unsuitable, but there have been no such areas identified, nor are particular amounts of unsuitable old growth areas accounted for among the unsuitable acres.”

After reviewing the FEIS, there are numerous ties to old growth and suitability. The FEIS (p. 208) identifies that the revised plan will be providing for anywhere from 18% to 78% of each forest ecosystem (either now or in the future) in old growth conditions. Old growth conditions will (either now or in the future) be found in those lands identified as unsuitable for timber production (which includes wilderness areas, riparian management zones, and various other special and designated areas, all of which totals 65,602 acres); as well as some lands that are identified as suitable for timber production, such as pine stands within RCW 0.5-mile foraging partitions within Management Area 1 (see FEIS, page 207, and FEIS, Appendix B, page 9).

In terms of the question of why pine stands that are within RCW 0.5-mile foraging partitions, and are within the “suited base”, can still be counted as providing for old growth conditions, see the issue on “Timber-Removing Old Growth”, and the issue on “Old Growth, Desired Conditions, and Issue 4”.

During the meeting that was held with the Objectors, there was a lengthy discussion surrounding which lands were identified as suited versus not suited for timber production, particularly why lands that are being managed for at-risk species are being included in the suited timber base. This question is identified in other objection issues as well. The reasons for their inclusion in the suited timber base won't be restated here, but in the meeting with the Objectors, it was agreed that an expression of "management intent" for these suited lands should be added to the ROD. This expression of management intent would clarify that they are in the suited base because of the need for repeated vegetation management entries to create and maintain the desired conditions, and timber products would be a by-product of those vegetation management activities, but that projects in these areas are not to be proposed for the primary purpose of producing timber.

#### Instruction

- Include in the Record of Decision a description of the management intent for the lands in the suited timber base that are being managed for at-risk species.

### Overestimating Timber Production

Not only are the above areas treated as suitable acres, but the volume projections have not been reduced from those expected from maximum timber production. The one exception is the RCW foraging areas in MA-1 where the rotation length has been extended. Notably any such RCW areas in MA-2 would be expected to contribute maximum timber volume, which conflicts with the statement in the response to comments that, "All pine stands within ½ mile of red-cockaded woodpecker clusters will be managed to provide suitable foraging habitat for the red-cockaded woodpecker." Otherwise, "No specific operational limitations that modify or reduce yields have been identified in the desired conditions and other plan components" (p. 14).

#### Objector Proposed Remedy

This leads to overestimating the amount of timber that can be produced and must be reconsidered.

#### Forest Service Response

The FEIS response to comments appendix #25, explained that "The 2012 planning regulations fulfill NFMA's direction, stating that "the quantity of timber that may be sold from the national forest is limited to an amount equal to or less than that which can be removed from such forest annually in perpetuity on a sustained yield basis" (36 CFR 219.11(d)(6)), and then stating that the responsible official "may provide for departures from this limit as provided by the NFMA when departure would be consistent with the plan's desired conditions and objectives"(36 CFR 219.11 (d)(6)(i)). Further, in the revised plan and FEIS, the Sustained Yield Limit is calculated to be 11.38 MMCF per year. The Planned Timber Sale Quantity (PTSQ) for the first decade is 9.83 MMCF per year and for the second decade, it is 9.51 MMCF per year. These Planned Timber Sale Quantities are both below the Sustained Yield Limit and do not "depart" from the limit (or in other words, do not exceed the limit) that has been established. Appendix B of the FEIS also

discloses in more detail how the PTSQ's for the alternatives were determined and how the Sustained Yield Limit (SYL) was calculated. These determinations, along with the forest plan standards for vegetation management, show how for the Francis Marion, the quantity of timber that may be sold from the national forest is limited to an amount equal or less than that which can be removed from the Francis Marion annually in perpetuity on a sustained-yield basis.

The FEIS Response to Comments #13, explained how Suitability for timber was calculated, particularly step 2: "Lands classified as suitable for timber production does not mean that timber production is the primary purpose of management activities. When land is classified as suitable for timber production, it means that timber production is compatible with the achievement of desired conditions and objectives in the plan (36 CFR 219.11(a)(1)(iii)), and some regular flow of timber products may be expected."

In the FEIS Response to Comments #108, "the 2012 planning rule does require that we address ecological integrity and timber suitability in forest plans. Suitability for timber production is discussed in Chapter 4 and Appendix B of the revised forest plan..."The planning team determined that a flow of forest products is compatible with desired conditions and objectives of those lands identified as suitable in the revised plan.

In Appendix B (p. 155-160) the process used for determining suitable lands and the Sustained Yield Limit is outlined. There is a discussion of several specific areas that are either designated in the plan or addressed in the plan. For example, "In frosted flatwoods salamander designated critical habitat, the desired condition is fire maintained, open canopy longleaf habitat. Trees grow through the years, their crowns expand, and younger trees come into the forest. Gradually the density of trees exceeds the desired open canopy condition. Periodic timber harvest helps reduce this density to maintain an open canopy and provide enough light for an herbaceous understory and for young longleaf pine to eventually replace the older trees in the forest. For these reasons timber production is compatible with this desired condition." ...Desired conditions for old growth are not expected to affect acres suitable for timber production. All of the 1) upland longleaf pine and 2) flatwoods and wet-pine savanna ecosystems will be managed so that the older trees will be at least 120 years old, as recommended in the 2003 revision of the Recovery Plan for the Red-cockaded Woodpecker. In time, most of these longleaf pine types in MA1 should have old growth conditions, even though they are managed.

In Appendix B (Forest Plan p159) – Following are notes on the assumptions used in modeling the timber outputs for the forest plan. It is important to recognize, however, that this revised plan does not make decisions on silvicultural systems. Those decisions are made at the project level. Plan direction in desired conditions and objectives drive project decisions....In modeling the desired conditions, the primary first decade needs for harvest are to: convert loblolly pine stands in MA1 to longleaf pine; thin pine stands to maintain desired densities; and regenerate pine stands in MA2....In MA1 upland longleaf pine, the assumption was made that loblolly pine age 20 to 50 would be converted to even-aged longleaf pine. Most loblolly pine over age 50 is assumed to be functional longleaf pine ecosystem. Loblolly pine over age 100 was converted to

even-aged longleaf pine. For existing longleaf pine, uneven-aged management was assumed once stands reach 120 years of age.

In MA1 wet pine savannas and flatwoods, the assumption was made that most loblolly pine stands age 20 to 50 would be converted to even-aged longleaf pine. 30% was assumed to be too wet for planting or immediate conversion. Remaining assumptions are the same as for upland longleaf pine except that 30% of age 100+ loblolly pine stands are assumed to be too wet for prompt conversion and so were modeled as regenerated to loblolly pine.

MA2 mixed pine/hardwood or loblolly pine stands (loblolly pine and longleaf pine in upland longleaf pine systems or wet pine savanna and flatwoods systems) are assumed to be managed on a 60 year rotation. For bottomland hardwood types and loblolly pine in the 1) broad forested swamps and large river floodplain forests, 2) narrow forested swamps and blackwater stream floodplain forest, and 3) oak forests and mesic hardwood forests ecological systems the assumed rotation age is 100 years. Note that in the 2<sup>nd</sup> approximation of the Francis Marion ecological systems, there are almost 25,000 acres of loblolly pine stands in the 3 systems just listed. Desired density in these pine stands is 100 square feet per acre basal area or less. For upland hardwoods a rotation of 100 years is assumed. For cypress-tupelo the assumed rotation is 140 years. Much of the maritime forest ecological system is currently in loblolly pine plantations. Desired density for these pine stands is 100 square feet per acre basal area or less. While loblolly pine is a normal component of maritime forests, live oak and other components described in the desired condition should be encouraged and favored until the desired composition of these forests is attained.

Appendix B (FEIS p8) – The forest types on the Francis Marion generally have growth rates that can allow for some flow of timber products. The exception to this is pond pine, and consequently, this forest type is unsuitable for timber production. Achieving the desired conditions of the revised forest plan, and maintaining these forest conditions and habitats, generally requires regular, planned harvest entries. These harvest entries produce a regular, at least modest, flow of timber. If it becomes apparent that this may not be the case for some lands, their suitability for timber production may be reconsidered.

The Project record thoroughly discusses the process followed to determine the Sustained Yield Limit and follows the policy in FSH1909.12 Chapter 60.

Appendix B (FEIS p14) - Growth and volume yield were largely modeled using the Forest Vegetation Simulator (FVS). Forest Inventory and Analysis (FIA) data from South Carolina was the basis for the model simulations....The FVS model was calibrated for defect, radial-diameter growth rates and basal area maximums. Francis Marion timber sale data was used to calibrate defect for loblolly sawtimber. Defect for all other species was set based on wider area averages found in FIA data. Growth and yield literature was examined to set the basal area maximums in the FVS model runs for the different analysis areas. Results were compared to growth and yield literature and estimates made by other national forests to be sure they seemed within reason. Average volumes from first thinning sales on the Francis Marion were used for those harvests. To ensure that yield estimates are reasonable, the following steps were incorporated into modeling efforts: 1) Yields for longleaf pine were estimated at 32.5 cubic foot/acre/year

compared to Homochitto National Forest estimates of 43 cubic foot/acre/year; 2) Estimated yields from the bottomland hardwood and hardwood-pine group are about half of the cubic foot yields for loblolly pine. Most of the timber produced from this group will consist of loblolly pine and will remain predominately loblolly pine for the foreseeable future. During the three decades from the 1960s through the 1980s (pre-Hugo), the Francis Marion sold an average of about 45 MMBF per year. In current conversions this equates to approximately 90,000 CCF per year, which is comparable to the PWSQ identified in the new forest plan. No specific operational limitations that modify or reduce yields have been identified in the desired conditions and other plan components.

In conclusion, the issue of overestimating the amount of timber is related to the other issues dealing with determination of SYL, PWSQ, and PTSQ. The issue is not so much in regards to whether the 2012 Planning Rule guidance was followed, but rather a question of the appropriateness of the changes in the 2012 planning rule.

The proposed remedy was to reconsider the amount of timber that can be produced. The process that was used and its appropriateness have been revisited and are still applicable. The process used meets the intent of the guiding policy and therefore does not need to be modified.

#### Instructions

N/A

### Management Area 1 Should Be Unsuitable For Timber Production

Once existing loblolly pine stands are restored to longleaf pine, prescribed fire or limited thinning should be able to maintain the necessary forest conditions. Timber harvest may still be used on occasion, but not on a predictable “recurring” basis.

Within MA-1, there are additional areas that objector believes should not be considered suitable for timber production. The area around lakes and open water wetlands have not been identified as riparian management zones, which are not suitable for timber management. As was mentioned above pond ecotones should not be considered suitable for timber production.

#### Objector Proposed Remedy

Within MA-1, there are additional areas that we believe should not be considered suitable for timber production. As we have noted elsewhere, the area around lakes and open water wetlands have not been identified as riparian management zones, which are not suitable for timber management. As was mentioned above pond ecotones should not be considered suitable for timber production.

#### Forest Service Response

The revised plan on page 123 (S22) says - Riparian management zones (RMZs) will be identified and designated during the appropriate stages of project planning for all perennial and intermittent streams, ponds, lakes, and springs. RMZs should be 50 feet on each side of intermittent streams and 100 feet on each side of perennial streams.

The revised plan on page 129 (G19) says - During project-level planning, mitigation measures for ground-disturbing activities should be developed when Best Management Practices are not specifically identified for those activities. These mitigation measures should limit effects to water quality, riparian management zones and soils and should be similar to the following: National Best Management Practices and South Carolina Forestry Commission's BMP concerning forestry; measures outlined in the Southern Region soil and water conservation guide; measures required by the Coastal Zone Management Act; and measures prescribed by the Army Corps of Engineers on restoring wetlands and streams.

Appendix B (FEIS p7) - In identification of lands not suited based on the legal and technical factors of 36 CFR 219.11....The largest subcategories of non-forest land, category (vi) in the regulations include brush, water and marsh, permanent wildlife openings, and rights-of-way....There are no lands in the Francis Marion that are judged to be in category (iv) in the regulations states that "The technology is not currently available for conducting timber harvest without causing irreversible damage to soil, slope, or other watershed conditions" On most national forests such lands are usually those having steep or very erodible slopes. These do not occur on the Francis Marion National Forest. Timber harvest is restricted during wet conditions by standard 17 and guidelines 8 and 9 in the revised forest plan and timber sale contract provisions to avoid resource damage. These make irreversible soil and watershed damage unlikely....Lands classified as suitable for timber production does not mean that timber production is the primary purpose of management activities. When land is classified as suitable for timber production, it means that timber production is compatible with the achievement of desired conditions and objectives in the plan.

Appendix B (FEIS p9-10) - shows in Table B-1 that 817 acres of water and marsh are considered as unsuitable, and the further identifies approximately 20,000 acres (depending on alternative) that are part of riparian management zones. These 20,000 acres are part of what may be suitable but not included in the suitable acres....For alternative 1 it became apparent from the project record that riparian management zones were not modeled as unsuitable for timber production. However, because 1996 plan direction for these areas made it plain that timber production is not compatible with achieving desired conditions and objectives, these acres are shown as unsuitable for timber production.

The revised plan on page 37 says - DC-ECO-10 Rivers and Streams - Riparian management zones are portions of a watershed where riparian-dependent resources receive primary emphasis to maintain or restore riparian and ecological functions. For the Francis Marion, these zones are defined as the area within 100 feet of perennial streams or open water wetlands, or within 50 feet of intermittent streams. Riparian management zones will help maintain the ecological integrity of rivers and streams and their associated aquatic systems. Desired conditions for aquatic ecosystems and riparian management zones (biological, physical, and chemical) are



described in narrative form below. Desired conditions for riparian management zones will vary by ecosystem, landscape position and management area....Canopy cover in riparian management zone provides shade and moisture that regulates stream temperatures. Riparian management zones function as filters to water bodies from sediments and pollutants. To maintain stream bank and channel integrity and water quality, livestock grazing in riparian management zones does not occur.

DC-WAT-1 Watershed Condition on page 49 - Riparian Management Zones (RMZ), which are approximately 100 feet from the edges of all perennial streams and lakes, and 50 feet from all intermittent streams, receive special consideration during project level planning to maintain hydrologic function and restoration of ecosystems.

The objector uses the term "limited thinning" which is vague and could have a wide range of interpretation. The lands in MA-1 are considered suitable because "timber harvest", which is rather all encompassing in itself, is compatible with the desired conditions. In the FEIS Appendix B (p8) it states "Lands classified as suitable for timber production does not mean that timber production is the primary purpose of management activities. When land is classified as suitable for timber production, it means that timber production is compatible with the achievement of desired conditions and objectives in the plan (36 CFR 219.11 (a)(1)(iii), and some regular flow of timber products may be expected. The suitability for timber production classification is not based on silvicultural or timber volume considerations. An estimate must be made, however, of the amount of timber that may be sold from these lands."

Trees grow through the years, their crowns expand, and younger trees come into the forest. Gradually the density of trees exceeds the desired open canopy condition. Periodic timber harvest helps reduce this density to maintain an open canopy and provide enough light for an herbaceous understory and for young longleaf pine to eventually replace the older trees in the forest. For these reasons timber production is compatible with this desired condition.

The structure of Upland Longleaf Pine and Loblolly Woodlands are open stand conditions with canopy closure typically less than 60 percent (40-70 sq. ft. of basal area). The midstory component is typically less than 30% cover and less than 3 feet tall. Timber harvests are necessary to maintain the desired stand density and stand structure. Prescribed fire is beneficial and a necessary component but prescribed fire is not the only tool necessary to properly manage for the desired conditions.

### **Remedy Response:**

Once the longleaf pine conditions are restored, periodic thinnings will occur in a given stand as the uneven-aged stand structure is developed over time. Prescribed fire is important for developing the desired ground cover, limiting fuel accumulation and removing fire-intolerant understory species, however timber harvesting, whether in the form of a thin from below or a free thinning favoring retention of longleaf, is also necessary to maintain/promote the desired conditions.

The objector also states that areas around lakes and open water wetlands were not included in RMZ areas and hence were included as suitable acres. In Appendix B (FEIS p9) 817 acres were identified as water and marsh and then another approximately 20,000 acres depending on the alternative were included in Riparian Management Zones and all of these acres were included in the calculation of lands not suitable for timber production. The revised plan (p123) goes on further to state in S22 that RMZs (RMZs) will be identified and designated during the appropriate stages of project planning for all perennial and intermittent streams, ponds, lakes, and springs. RMZs should be 50 feet on each side of intermittent streams and 100 feet on each side of perennial streams. So while RMZs were identified during the Forest Planning process, field verification will take place during site-specific project development and provide an additional opportunity to identify an RMZ, if it were missed previously.

There is no literature which supports the notion of prescribed fire alone being able to maintain the uneven-aged stand structure. GTR-SRS-78 "Uneven-aged Management of Longleaf Pine Forests: A Scientist and Managers Dialogue" suggests that using small group selections or group thinnings is the closest management action to mimicking natural gap phase dynamics which has historically occurred in these stands. GTR-SRS-78 supports the notion that fire is necessary but that by no means is it able to maintain stand structure on its own.

#### Instructions

- Change Standard S22 to define and include open water wetlands. Adjust any changes to the suited acres and timber volume determinations that are applicable, along with any applicable changes to the Aquatics sections.
- Include in the ROD a discussion of the agency's intent in implementing the forest plan's timber suitability direction.

#### Timber Harvest Should Not Used To Remove Old Growth

For species needing old growth trees (like RCWs), we do not see an ecological justification for removing trees that have grown to a proper density as a result of periodic burning. We believe that the Forest has misinterpreted the recovery plan language that trees in RCW foraging habitat should be at least 120 years old (p. 11). The assumption in the plan is that trees may be harvested in 120 years, and that trees may reach age 170, but there is nothing in the plan that requires this. Even on the assumed removal schedule, the resulting forests would probably not resemble the type of forest needed for recovery. Since the RCW recovery plan states that one of the two key limiting factors is a lack of cavity trees, the best available scientific information would not support regulated harvest of cavity trees as a requirement for species viability or ecological integrity.

#### Objector Proposed Remedy

Remedy(s) proposed by Objector: The Forest needs to reconsider this issue.

### Forest Service Response

Harvesting is necessary to maintain RCW foraging habitat in perpetuity. Fire is also needed, however fire alone is not adequate. Trees grow through the years, their crowns expand, and younger trees come into the forest. Gradually the density of trees exceeds the desired open canopy condition. Periodic timber harvest helps reduce this density to maintain an open canopy and provide enough light for an herbaceous understory and for young longleaf pine to eventually replace the older trees in the forest.

Appendix B (p. 11) in the FEIS states that the desired condition for old growth does not conflict with suitable acres for timber production and that long term management is uneven-aged (p. 13). At age 120, stands enter uneven-aged management. S33 states to retain all potential red-cockaded cavity trees (pines greater than 60 years in age) within RCW clusters, unless pine basal area is above 50 ft<sup>2</sup>/ac and all trees are above 60 years within the clusters; protect RCW cavity trees by shielding cavities with restrictors, painting known cavity trees with highly visible paint, or replacing lost cavities with artificial ones.

The revised plan (Appendix B p 157) states that regular planned harvest entries are needed to create and maintain the desired habitat conditions.

The revised plan (Appendix B p 158) states "Desired conditions for old growth are not expected to affect acres suitable for timber production. All of the 1) upland longleaf pine and 2) flatwoods and wet-pine savanna ecosystems will be managed so that the older trees will be at least 120 years old, as recommended in the 2003 revision of the Recovery Plan for the Red-cockaded Woodpecker. In time, most of these longleaf pine types in MA1 should have old growth conditions, even though they are managed."

Appendix H Response to Comment (p247) Response #57 - The Francis Marion contributes to the recovery of red-cockaded woodpecker and management activities must comply with forest plan desired conditions, objectives, standards and guidelines. We have considered guidelines and desired conditions from the red-cockaded woodpecker recovery plan as well as the historic range of variation expected for associated longleaf ecosystems, and incorporated them as desired conditions, guidelines, and standards as appropriate in the revised forest plan.

Appendix H (p255) Response #126 - The red-cockaded woodpecker recovery plan does not prohibit the harvest of foraging size pine trees. Reducing the basal area of these discounted stands may in fact improve stand conditions whereby allowing these stands to be counted towards suitable foraging habitat for red-cockaded woodpecker....The plan standards for vegetation management discusses and limits even-aged opening size to 80 acres or less except for the purposes of longleaf restoration. The revised plan contains design criteria in Chapter 3, under the sections for Ecological sustainability and At-risk Species to protect habitat for red-cockaded woodpecker....The forest plan also contains desired conditions to promote old growth conditions within 1/2 mile foraging partitions and mature open stands of longleaf with scattered large flat topped longleaf present in the canopy, within associated longleaf ecosystems in Management Area 1.

Appendix H (p255) Response #127 - The impacts of removing cavity trees to red-cockaded woodpecker is an important consideration. A site-specific analysis and consultation with the US Fish and Wildlife Service must be completed before implementing a project proposing the removal of cavity-sized trees. The revised plan addresses this concern in a number of places.

Appendix H (p256) Response #128 - The impacts of conversion of loblolly pine to longleaf pine is carefully considered before implementing any management activities. A site-specific analysis and consultation with the US Fish and Wildlife Service must be completed before a project that would convert loblolly pine to longleaf pine would be implemented.

Through two-aged management and/or uneven-aged management some trees with old-growth characteristics may be harvested, but nowhere does the Plan state that all trees with old-growth characteristics would be harvested to maintain desired foraging habitat. Stands will not stay in a constant state in perpetuity and fire will not impact the overall stand density alone. The desire is for low intensity fire to go through stands every 2-3 years. This type of fire will help with understory seedlings and saplings, but will have little control over larger trees. Analysis associated with the development of the Forest Plan has demonstrated that old growth characteristics, timber harvesting and maintaining the desired conditions for longleaf and RCW habitat are compatible with each other.

#### Instructions

N/A

### Timber Management Is Not For At-Risk Habitat Maintenance

We identified other circumstances in our comments on the DEIS, which included red-cockaded woodpecker foraging habitat, frosted flatwoods salamander critical habitat and Carolina gopher frog breeding wetlands. Appendix B in the FEIS addresses the first two, as well as “virtually all rare plant communities,” by essentially stating that these species need a “fire maintained, open-canopy, longleaf pine habitat, which requires some form of timber management” (p. 10, emphasis added).

This logic is not self-explanatory. While the Forest has made the case that periodic fire is needed and will be used in MA-1, that is not the case for periodic logging. After reconversion to longleaf pine and regular burning, mechanical tree removal should not generally be required. Moreover, for critical habitat for a listed species that may be adversely affected by timber harvest, there should be no question that regular timber production should not be considered, at least until the species has recovered.

#### Objector Proposed Remedy

For critical habitat for a listed species that may be adversely affected by timber harvest, there should be no question that regular timber production should not be considered, at least until the species has recovered.

### Forest Service Response

Appendix G (FEIS p 217 BE/BA) - In regards to upland longleaf restoration and concern of negative impacts to RCW populations. "The analysis above suggests that implementing the forest plan could adversely affect up to 15 red-cockaded woodpecker clusters per year through reduction of foraging habitat or forest management activities conducted within cluster boundaries during the breeding season. This equals 3.3% of the 465 active clusters based on the 2015 red-cockaded woodpecker survey data. In the last 10 years, as the post-Hurricane Hugo forest has grown into improved foraging habitat, the average annual red-cockaded woodpecker population growth has been 3.7%. Most of this growth has resulted during this period but no new recruitment clusters have been established. Population growth rate varies from year to year but using the 10-year average of past growth is reasonable and constitutes the best available information.

Appendix G (FEIS p 208 BE/BA) - Since 2007, the Francis Marion National Forest's red-cockaded woodpecker population has exceeded the recovery goal of 350 potential breeding groups as described in the red-cockaded woodpecker recovery plan.

Appendix G (FEIS p 208 BE/BA) - The Francis Marion supports the third largest population of the federally endangered red-cockaded woodpecker in the U.S. and is one of the 13 designated core recovery populations. Prior to Hurricane Hugo in 1989, the red-cockaded woodpecker population consisted of approximately 477 groups and was one of the only known naturally expanding populations. In one night, Hurricane Hugo killed an estimated 63 percent of the red-cockaded woodpecker population, destroyed 87 percent of the cavity trees and 59 percent of the foraging habitat across the Francis Marion. Due to extensive habitat management and installation of more than 2,800 artificial cavities, the red-cockaded woodpecker population has rebounded to approximately 477 active clusters including 460 breeding groups, and 4,596 cavity trees in active foraging partitions.

Appendix B (FEIS p10) - "For the red-cockaded woodpecker, nesting clusters were not considered suitable for timber production, but foraging habitat was considered suitable for timber production. Similar to the rare plant communities, the red-cockaded woodpecker needs a fire-maintained, open-canopy, longleaf pine overstory. As described above, regular planned harvest entries are needed to create and maintain the desired habitat conditions."

This issue was brought up during the initial comments on the draft EIS and were answered in Response #126 & 127.

Response 127 - "The impacts of removing cavity trees to red-cockaded woodpecker is an important consideration. A site-specific analysis and consultation with the US Fish and Wildlife Service must be completed before implementing a project proposing the removal of cavity-sized trees. The revised forest plan addresses this concern in a number of places: DC-T&E-2 Red-Cockaded Woodpecker; OBJ-T&E-2 Red-Cockaded Woodpecker; and Standards and Guidelines for At-Risk Species and Ecological Sustainability.

Response 128 - The impacts of conversion of loblolly pine to longleaf pine is carefully considered before implementing any management activities. A site-specific analysis and consultation with the US Fish and Wildlife Service must be completed before a project that would convert loblolly pine to longleaf pine would be implemented.

The primary role of RCW foraging habitat is to meet the foraging needs of RCW. The RCW recovery plan on page 186 states, Fitness increases if foraging habitat is burned regularly, has an open character and herbaceous groundcovers. Page 193 of the RCW recovery plan states, "High pine density negatively affected group size and productivity. High densities of small pines negatively affected group size and productivity, and high densities of small pines negatively affected selection of stands for foraging." Page 193 also includes a list of several scientific publications to back up these statements.

To meet the desired future condition of the foraging habitat and to maintain it through time, regular timber harvest will occur, therefore timber production is a secondary use of the land. With growth and yield tables we can predict and schedule planned treatments to maintain quality foraging habitat.

Within 0.5 miles radius circles of RCW cluster centers are approximately 500 acres of habitat. Of this, 120 acres is needed for foraging habitat. With the diverse habitat matrix on the Francis Marion, it is highly unlikely all 500 acres will be pine. RCWs are not evenly distributed across the landscape and foraging partitions may not include 500 acres. It is imperative that some regeneration occur to insure a steady flow of suitable habitat through time. RCW foraging habitat meets all 5 criteria to be classified as suitable for timber production.

The RCW recovery plan described good quality foraging habitat as: "Good quality foraging habitat has some large old pines, low densities of small and medium pines, sparse or no hardwood midstory, and a bunchgrass and forb groundcover. Based on results of studies described in 2E and Table 13, good quality habitat has all of the following characteristics:

- a. There are 45 or more stems/ha (18 or more stems/ac) of pines that are > 60 years in age and > 35 cm (14 in) dbh. Minimum basal area for these pines is 4.6 m<sup>2</sup>/ha (20 fts/ac). Recommended minimum rotation ages apply to all land managed as foraging habitat.
- b. Basal area of pines 25.4-35 cm (10-14 in) dbh is between 0 and 9.2 m<sup>2</sup>/ha (0 and 40 fts/ac).
- c. Basal area of pines < 25.4 cm (<10 in) dbh is below 2.3m<sup>2</sup>/ha (10 ft<sup>2</sup>/ac) and below 50 stems/ha (20 stems/ac).
- d. Basal area of all pines > 25.4 cm (10 in) dbh is at least 9.2 m<sup>2</sup>/ha (40 ft<sup>2</sup>/ac). That is, the minimum basal area for pines in categories (a) and (b) above is 9.2 m<sup>2</sup>/ha (40 ft<sup>2</sup>/ac).

The most cost effective way to achieve and maintain these conditions is through commercial timber sales.

FEIS Appendix B (p10) and Forest Plan Appendix B (p157) - "In frosted flatwoods salamander designated critical habitat, the desired condition is fire maintained, open-canopy, longleaf pine habitat. Trees grow through the years, their crowns expand, and younger trees come into the

forest. Gradually the density of trees exceeds the desired open canopy condition. Periodic timber harvest helps reduce this density to maintain an open canopy and provide enough light for an herbaceous understory and for young longleaf pine to eventually replace the older trees in the forest. For these reasons timber production is compatible with this desired condition."

DC-ECO-2 - "Wet pine savannas and flatwoods fire-adapted ecosystems support a very high diversity of plant and animal species, including red-cockaded woodpecker and frosted flatwoods salamander."

OBJ-ECO 2, 3, 4 - Vegetation management is necessary to provide for open canopy conditions. Frequent prescribed fire is also necessary to control encroachment of woody understory species. There are 1,175 acres of critical habitat for frosted flatwoods salamander in the Wando RIZ.

OBJ-T&E-1 There is not currently a recovery plan for the frosted flatwoods salamander but one is anticipated.

The objector's remedy is not compatible with the creation and maintenance of the desired conditions for red-cockaded woodpecker habitat, frosted flatwoods salamander or Carolina gopher frog habitat. The revised plan states the need for timber harvest to maintain desired conditions, the use of timber harvest has been analyzed, and the practices are in alignment with the Red-cockaded Woodpecker Recovery Plan. In addition, the objector states that timber harvesting should not be considered until at least the species has recovered, and based on the most recent data, the RCW has surpassed the goals established on the Francis Marion. This exemplifies the point that timber harvesting over the last 25 years since hurricane Hugo has had a positive impact on RCW rather than a negative one.

Trees grow through the years, their crowns expand, and younger trees come into the forest. Gradually the density of trees exceeds the desired open canopy condition. Periodic timber harvest helps reduce this density to maintain an open canopy and provide enough light for an herbaceous understory and for young longleaf pine to eventually replace the older trees in the forest. For these reasons timber production is compatible with this desired condition.

Timber harvests, are necessary to maintain the desired stand density and stand structure. Prescribed fire is beneficial and a necessary component but prescribed fire is not the only tool necessary to properly manage for RCW habitat. (See also GTR-SRS-78)

#### Instructions

N/A

The following objection issues are not specifically related to the Francis Marion’s revised plan other than the contention that the forest should not have used regulations and or policy that they believe have not been properly promulgated. The Forest Service does not consider these issues to be within the scope of the Francis Marion Plan Revision and Objection process, but has chosen to address them in the spirit of transparency, continuing dialog and furthering mutual learning.

#### THE PLANNING RULE’S INTERPRETATION OF NFMA TIMBER REQUIREMENTS ARE INCORRECT AND NOT LEGALLY ADOPTED

It is an established principle of administrative law that major changes in agency policy be fully explained to the public. While the Forest Service has described its process for developing the 2012 planning rule as “an extensive public outreach and participation process unprecedented for the development of a planning rule,” the Forest Service has made these particular changes without pointing them out to the public. First, unlike the 1982 regulations, this planning rule did not specify how timber volume limits would be determined so the public could not comment during rule-making. That responsibility was shifted to the agency planning Directives. Second, while development of these Directives included public involvement, it was not at the same “extensive” level, and did not include a NEPA process.

The new planning handbook has essentially redefined the meaning of “sustained yield” of timber in NFMA and the Multiple-Use Sustained-Yield Act” by abandoning the non-declining flow concept. There is nothing in the response to public comments on the planning rule that indicates that limits on the quantity of timber sold would be calculated on a different land base and using an entirely different set of assumptions than the practice of the prior half-century. Nor is there any suggestion that the difference between the new “ceiling” and the projected levels would be this great. The Preamble simply reiterates that, “Plans will have an upper limit for timber harvest” (p. 21228). The first apparent public acknowledgement that the Forest Service was even taking a “new approach” was in comments accompanying the final Planning Handbook. Since the timber volumes expected from and allowed by a forest plan may be the most important numbers that come out of the planning process, the agency’s opaqueness on this issue is mystifying.

#### Objector Proposed Remedy

The Francis Marion should not attempt to follow procedures that were not legally adopted and violate statutory law. They should instead use procedures mentioned above that remain a requirement in the timber planning handbook and that comply with NFMA.

#### Forest Service Response

In the preamble of 36 CFR 219, page 21162 and 21228 respectively, the following response to public comment regarding “sustained yield” is found;



Pg. 21162 - In paragraph (d)(6) of this section, the rule directs that plan components must set forth the limit on the quantity of timber that may be sold in the national forest. The Department modified the wording of paragraph (d)(4) of the proposed rule, and moved the provision to paragraph (d)(6) of the final rule as follows:

(1) The proposed rule required plan components to limit the quantity of timber that can be removed annually in perpetuity on a sustained-yield basis. The final rule says plan components must ensure the quantity of timber that may be sold from the national forest is limited to an amount equal to or less than that which can be removed from such forest annually in perpetuity on a sustained-yield basis. This change was made to agree with the NFMA wording.

(2) The Department added a sentence that this limit may be measured on a decadal basis to reflect the Agency practice, and 16 U.S.C. 1611. Note that under this paragraph the quantity sold in any given year may exceed the annual average for the decade, but the total quantity sold over a 10-year period may not exceed the decadal limit.

(3) The Department changed the provision that required the plan to “provide for departure from the limit, as provided by NFMA” to “the plan may provide for departures from this limit as provided by the NFMA where departure would be consistent with the plan’s desired conditions and objectives.”

(4) The Department added that exceptions for departure from this limit on the quantity sold must be made with a public review and comment period of at least 90 days, to be consistent with the NFMA.

The Department concludes that these changes in wording at revised paragraphs (d)(6) of this section clarify the Department’s intent and reflect the requirements of the NFMA.

pg. 21228 - Section 219.11 includes timber requirements based on the NFMA. The term “allowable sale quantity” (ASQ) is a term of art of the 1982 rule. The term ASQ is used in the NFMA in discussions about departures that exceed the quantity of timber that may be sold from the national forest (16 U.S.C. 1611). However, the NFMA does not require that the term be used in the implementing regulations (16 U.S.C. 1604). The term has caused confusion about whether ASQ is a target or an upper limit under the 1982 rule procedures, the Agency wants to avoid this confusion under this final rule. Plans will have an upper limit for timber harvest for the quantity of timber sold as required in § 219.11(d)(6). The requirements in § 219.7(f) that plan content must include information about the planned timber sale program and timber harvesting levels, and in § 219.11(d)(6) that the plan must limit the quantity of timber that may be sold from the

national forest to that which can be removed annually in perpetuity on a sustained-yield basis, provide a more practicable way to give direction than using the term “ASQ.”  
*Additional requirements will be found in the Forest Service Directive System.”*

On February 29, 2013, the Forest Service proposed to revise the Forest Service Handbook (FSH 1909.12) and Manual (FSM 1920) establishing procedures and responsibilities for implementing the National Forest System land management planning regulation (collectively “planning directives”) ([78 FR 13316](#), February 27, 2013). The Agency requested the public comment and provided a 60-day comment period. During this timeframe, the Forest Service received 17,449 responses (excluding duplicates), including mailed letters, faxes, emails, and web submissions from [www.Regulations.gov](#). Of the 17, 449 comments 370 were unique the other were organized campaign responses. The Agency did receive comments similar to the objector’s concerns. For instance, a respondent felt the way “long-term sustained yield capacity” (LTSYC) is being defined in the proposed directives violates NFMA (16 USC 1611 (a)). The Agency considered these comments when approving the final directive and responded to the comments in the [Response to comments](#).

The Forest Service Directive System codifies the agency's policy, practice, and procedure. All employees are required to follow the current planning directives when carrying out the 2012 planning rule. Because the 2012 Planning Rule was promulgated under NEPA, the FSH 1909.12 falls under the NEPA conducted for the rule, itself. The Timber Resource Planning Handbook, FSH 2409.12, Chapter 60 is not applicable to a 2012 planning rule plan revision. The only planning directives for the 2012 planning rule are FSM 1920 and FSH 1909.12–Land Management Planning Handbook (36 CFR 219.2(b)(5)).

#### Remedy Response

It would not be appropriate for the Forest Supervisor to follow the remedy suggested and use the outdated procedures of FSH 2409.12.

#### Instructions

N/A

### THE PLANNING RULE ABANDONS THE CONCEPTS OF SUSTAINED YIELD AND NON-DECLINING FLOW OF TIMBER

The Francis Marion revised forest plan presents new and incorrect Forest Service interpretations of NFMA’s timber requirements that represent substantial changes from prior national forest planning. First, projected timber yields from land both suited and not suited for timber production would be combined into a single calculation, which may include lands where future timber yields are highly uncertain.

The 2012 Planning Rule addresses these timber management requirements in 36 CFR 219.11. Relevant planning directives are found in FSH 1909.12, Chapter 60. However, the Timber

Resource Planning Handbook, FSH 2409.13, Chapter 30, contains the original and correct agency policy definitions, and the Planning Handbook therefore conflicts with that.

#### Objector Proposed Remedy

The record must identify “the projected long-term average sale quantity that would otherwise be established (without a departure),” as required by NFMA. The PTSQ for such a schedule would certainly be lower – and more stable – as a result of the limits revealed in the later decades. Nowhere does the plan or FEIS or draft ROD use the term “departure,” for this decline of 25%, thus hiding that fact from the required public review.

The desired condition to convert loblolly forest types to longleaf pine is appropriate. However, the rate of conversion must consider the short-term impacts on at-risk species, and the need for accelerated restoration must be justified in this context.

#### Forest Service Response

The National Forest Management Act (NFMA) requires that the Agency “limit the sale of timber from each national forest to a quantity equal to or less than a quantity which can be removed from such forest annually in perpetuity on a sustained-yield basis” (16 U.S.C. 1611(a)). The NFMA does not specify the lands that are to be considered when determining this limit. Under the 1982 Rule, the limit was based on lands suitable for timber production and the “intensities of management and degree of timber utilization consistent with the goals, assumptions, and requirements contained in, or used in, the preparation of the current RPA Program and regional guide” (1982 rule--36 CFR 219.16(a)(2)(i)). The NFMA is not specific; therefore, the Agency can take a different approach under the 2012 Planning Rule.

The NFMA permits timber harvest from land that is not suited for timber production for salvage sales or sales necessitated to protect other multiple-use values. (16 U.S.C. 1604((k)). Such timber harvest for purposes other than timber production is suitable resource management throughout the plan area. Also, the limitations of timber removal applies to all national forest system lands (16 U.S.C. 1611(a)) not just the lands suited for timber production. After all, timber may be harvested from lands not suited for timber production if the harvest is used to improve wildlife habitat, reduce fire risk, or other multiple-use values (36 CFR 219.11(c)).

Since, 1982 the Agency has changed its position on how to calculate the limitations of timber removal. The Agency first proposed that this limit be calculated from all NFS lands on March 23, 2005 when the Agency published the interim directive FSH 1909.12, chapter 60–Forest Vegetation Resource Planning and requested public comment.

The Wilkinson and Anderson document of “Land and Resource Planning and in the National Forests” is an excellent discussion about the history, legal aspects, issues, and policy set forth in the 1982 planning rule. But, the Agency has learned much since 1982. Therefore, we have a new rule to solve today’s issues.

Sustained yield means the achievement and maintenance in perpetuity of a high level annual or regular periodic output of the various renewable resources of the national forests without

impairment of the productivity of the land. (16 U.S.C. 531(b)). The revised plan meets this standard for sustained yield. The Forest Supervisor did consider that “a flow of timber can be planned and scheduled on a reasonable basis” when determining the lands suited for timber production (FSH 1909.12, ch. 60, sec. 61.2). The Agency decided to not continue with the policy of non-declining even flow (NDEF) requirement of the 1982 planning rule. The National Forest Management Act does not require NDEF.

***Here is the relevant response to a comment on this subject received on the proposed planning directives:***

***Comment:*** A respondent felt the way “long-term sustained yield capacity” (LTSYC) is being defined in the proposed directives violates NFMA (16 USC 1611 (a)); see proposed directives at FSH 1909.12, ch. 60, sec. 64.61.). The respondent said that the proposed directive provides that the LTSYC includes volume from lands that are not suitable for timber production because timber production is not compatible with other plan components, (which is also a major change from the 82 Rule). NFMA (Section 13) defines LTSYC as the “quantity which can be removed from such forest annually in perpetuity on a sustained-yield basis.” The concept of sustained-yield has always been tied to land that is suitable for timber production. The commenter adds that the directives cannot inflate the LTSYC limit on timber volume by including lands that are not suitable for timber production. The directives must also be explicit that the calculations of LTSYC must be based on integrated silvicultural prescriptions that achieve desired conditions and meet standards for non-timber purposes. This would be especially important if LTSYC includes lands that are not suitable for timber production. The directives should also require that LTSYC and planned sale quantity (PSQ) be applied and tracked separately for suitable and non-suitable lands (see proposed directives at section 65.1).

***Response:*** The National Forest Management Act (NFMA) requires that the Agency “limit the sale of timber from each national forest to a quantity equal to or less than a quantity which can be removed from such forest annually in perpetuity on a sustained-yield basis” (16 U.S.C. 1611(a)). The NFMA does not specify the lands that are to be considered when determining this limit and does not require that the limit be determined based on integrated silvicultural prescriptions that achieve desired conditions. Under the 1982 Rule, the limit was based on lands suitable for timber production and the “intensities of management and degree of timber utilization consistent with the goals, assumptions, and requirements contained in, or used in, the preparation of the current RPA Program and regional guide” (1982 rule--36 CFR 219.16(a)(2)(i)). The NFMA is not specific; therefore, the Agency can take a different approach under the 2012 Planning Rule.

For the final directive under the 2012 Planning Rule, the Agency concluded that it is not appropriate to calculate the timber volume limit only from lands that are suited for timber production. The Forest Service reached this conclusion because, contrary to expectations at the time of the 1982 Planning Rule, substantial amounts of timber have been harvested on lands not suited for timber production for reasons other than timber production, and such harvests are likely to continue as the Forest Service works to restore forests. Thus, the Agency is taking a new approach, to estimate the quantity which can be removed from each forest annually in

perpetuity on a sustained-yield basis, from both lands that are suited and lands that are not suited for timber production. The limit is calculated based on the sustained yield that can be produced, without considering fiscal or organizational capability from all lands in the plan area except those to which the factors set out in the Rule at section 219.11 (a)(i), (ii), (iv), (v), and (vi) apply.

The Agency acknowledges that taking a new approach with the long-standing term “Long Term Sustained Yield Capacity” (LTSYC) has caused confusion. The final directives therefore use a new term: “sustained yield limit” (SYL) to describe the amount of timber that can be harvested in perpetuity.

The SYL is simply the upper limit of what could be offered. Actual sale levels would depend on any number of factors. These factors include fiscal capability of the planning unit, timber market conditions, constraints on timber harvest in the land management plan and other sources, and project-level analysis.

#### Instructions

N/A. See also the response below to the Issue- Timber Volume Limits.

#### Timber Volume Limits (PWSQ and PTSQ)

Unlike the ASQ, the PWSQ and PTSQ are intended as realistic projections that are designed to be used as targets, and the Francis Marion revised plan includes a PTSQ of 98 MMCF in the first decade as an objective. This approach that blurs the historic distinction between suitable and unsuitable lands in contributing to meeting timber projections or targets would make it likely that such targets will be based in part on lands that are being managed for uses that are not compatible with timber production, which would increase pressure to harvest timber from those lands. On the Francis Marion, however, the PTSQ that is a forest plan objective is calculated only from lands that are suitable for timber management (OBJ-MUB-7). This is likely because almost all of the lands that could produce timber are considered suitable, and no harvest on the remaining acres is a reasonable assumption. The new PTSQ is triple the current ASQ of 33 MMCF, and would exceed the current sustained yield limit of 63 MMCF. This is obviously not sustainable.

#### Objector Proposed Remedy

The record must identify “the projected long-term average sale quantity that would otherwise be established (without a departure),” as required by NFMA. The PTSQ for such a schedule would certainly be lower – and more stable – as a result of the limits revealed in the later decades. Nowhere does the plan or FEIS or draft ROD use the term “departure,” for this decline of 25%, thus hiding that fact from the required public review.

The desired condition to convert loblolly forest types to longleaf pine is appropriate. However, the rate of conversion must consider the short-term impacts on at-risk species, and the need for accelerated restoration must be justified in this context.

#### Forest Service Response

The PTSQ for the Revised Plan is 98.3 MMCF/decade 1 (9.8 MMCF/year) and 95.1 MMCF/decade 2 (9.5 MMCF/year), while the Sustained Yield Limit (SYL) is 113.8 MMCF/decade (revised plan, p. 159).

While this is considerably higher than the ASQ in the 1996 Plan ASQ of 33 MMCF, that ASQ was calculated based upon the condition of the Francis Marion National Forest in the immediate aftermath of Hurricane Hugo. See Appendix A, p. A-5, of the 1996 Forest Plan where it states that “little regeneration harvest is anticipated over the next 10 years due to the current condition of the Forest”, and Appendix B of the FEIS to the 1996 Forest Plan where it states that “About 60 percent, or 92,500 acres, of pine received heavy or moderate damage. Most of the damage was in trees over 40 years old” (p. B-10). Also on page B-12 where it states that “Before the hurricane, the Forest was offering about 46 million board feet annually. Based on estimates following the hurricane, about 1 billion board feet of pine and hardwoods were damaged. This is roughly the amount of timber the Forest would have offered in 20 years.”

As mentioned above, the historical volume sold from the Francis Marion during the 3 decades prior to Hurricane Hugo (1960s thru the 1980s) averaged around 45 MMBF (or 9 MMCF) per year (see also 201608\_FM\_Final\_EIS\_Appendices.pdf, Appendix B, p. 14, and 20161001yld FM&S\_timber\_sell\_records.xls), which is in line with the 2016 Revised Plan’s PTSQ. It also needs to be noted that none of the PTSQs exceed the SYL, and the Forest Plan has a Standard (S-6) that states that the SYL cannot be exceeded.

The Sustained Yield Limit of 113.8 MMCF/decade (11.3 MMCF/year) is also reasonable when considering that the FIA analysis of the Francis Marion National Forest estimated that the annual net growth on the FMNF is 18.3 MMCF/year. (See 20121213\_FIA FMS growth, table25-1, 2011.pdf)

*Remedy Response:*

The proposed remedy is to identify a “Long-Term Average Sale Quantity”, however what the Objector likely meant is to one, identify a Long-Term Sustained Yield (LTSY), and then two, identify a non-declining timber sale schedule that would not exceed the LTSY.

As described in the previous two issue statements, the new planning rule and planning directives no longer require the calculation of a LTSY, and have replaced that with a calculation for a Sustained Yield Limit (SYL) which the Forest has accomplished. There is also no requirement under the new planning rule and the planning directives that the Projected Timber Sale Quantity (PTSQ) needs to meet a non-declining even-flow requirement. The Francis Marion’s PTSQ does decline over the first four decades before increasing in the fifth decade. As is explained in Appendix B to the FEIS (p. 15), the increased level in the first few decades is because of the intention to convert large acreages of loblolly pine to longleaf pine, and because of the effects of Hurricane Hugo, the existing age class distribution of the forest has around 27% of the forest in the 20-30 year age class, while there are very few acres in the 0-20 year age classes.

While it is true that a non-declining even-flow type of constraint could be applied, and such a constraint would lower the PTSQ for the first decade, such an approach would end up limiting the restoration activities that are needed to be made to move the Forest toward meeting its desired conditions.

Lastly, while the FEIS does disclose the fluctuating PTSQ over the decades, the term “departure” is not used. This is because under the 2012 planning rule and planning directives, a “departure” is when a PTSQ exceeds the SYL (see FSH 1909.12, Ch. 60, 64.33), which is not the case for the Francis Marion’s Revised Plan. The Objectors remedy for identifying a “departure” is based off the 1982 planning rule’s definition of “departing” from a “non-declining even-flow” sale schedule. But such a definition for a “departure” is not applicable to a plan prepared under the 2012 planning rule and directives.

The Francis Marion further discussed this issue in Appendix H of the FEIS to the 2016 Revised Plan, Response to Comments, on pages 240-241.

Instructions  
N/A

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## ABBREVIATIONS

AOP: Aquatic Organism Passage

BA: Biological Assessment

BE: Biological Evaluation

BO: Biological Opinion

BMP: Best Management Practice

CFR: Code of Federal Regulations

DEIS: Draft Environmental Impact Statement

ESA: Endangered Species Act

FEIS: Final Environmental Impact Statement

FMLMP: Francis Marion Land Management Plan

FMNF: Francis Marion National Forest

FSH: Forest Service Handbook  
FSM: Forest Service Manual  
LMP: Land Management Plan  
MA: Management Area  
MSS: Management Stability Standard  
NEPA: National Environmental Policy Act of 1969  
NFMA: National Forest Management Act  
NFS: National Forest System  
NRV: Natural Range of Variation  
ORD: Open Road Density  
PNV: Present Net Value  
PTSQ: Projected Timber Sale Quantity  
PWSQ: Projected Wood Sale Quantity  
RCW: Red-cockaded Woodpecker  
ROD: Record of Decision  
SCC: Species of Conservation Concern  
T&ES: Threatened and Endangered Species  
USFWS: United States Fish and Wildlife Service